



Menace of Anaemia among Adolescent Girls in Shaheed Bhagat Singh Nagar District in Punjab

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ABSTRACT

Anaemia is the most prevalent nutritional deficiency disorder in the world. It is very common in the developing countries as a result of inadequate diet or poor absorption. Among all the age groups, adolescents girls are the most vulnerable. District Level Household Survey indicated that about 99 per cent of adolescent girls in Punjab suffer from anaemia. Among all the districts it is quiet prevalent in Shaheed Bhagat Singh Nagar district. The present study focused on the anaemia levels of the adolescent girls calculated from the hemoglobin test of 150 school going adolescent girls in SBS Nagar district. The study indicated that all the adolescent girls tested for haemoglobin in the present study suffered from some form of anaemia. The prevalence was higher in urban areas and those who belong to nuclear families and had 3rd or 4th ordinal position in the family. The study also focused on the source of drinking water and eating patterns of the adolescent girls.

Key Words: Menace, Anaemia, Adolescent, Girls.

INTRODUCTION

Anaemia is a condition in which the haemoglobin count of the blood is lower than the normal as a result of deficiency of one or more essential nutrients and can occur at all stages and among both sexes. It is very common in the developing countries as a result of inadequate diet or poor absorption. Infants, children up to 2 years of age, adolescent girls and pregnant women are more prone to anaemia. Adolescence is a crucial phase of growth in the life cycle of an individual. It is period of transition between children and adulthood occurring between 12 to 18 years of age. Adolescent girl form a crucial segment of the population and acts as a “bridge” between the present generation and the next.

Prevalence of Iron Deficiency Anaemia among Adolescent Girls

In India, 75 per cent adolescent girls are anaemic and are at a risk of mortality and morbidity. Adolescence is the vulnerable period in the human life cycle for the development of nutritional anaemia as it is the shaping period of life when maximum amount of physical, psychological and behavioural

changes take place. (Chaudhary and Dhage, 2008). The state level data from the District Level Household and Facility survey (DLHS) conducted in 2006 indicates that as high as 99 per cent of the adolescents girls in Punjab in the age group of 10-19 years had some form of deficiency pertaining to their anaemia levels; 17 per cent of them were mildly anaemic, 48 per cent were moderately anaemic and 34 per cent had severe anaemia. The recent findings on anemia as indicated by DLHS 4 (2015) had reported that 48.6 per cent of adolescent girls suffer from anaemia and 3.2 per cent of them suffer from severe anaemia (Table 1).

The data reveal that the proportion of females living in rural areas in the age group of 6-10 years and belonging to SC category suffering from anaemia is higher as compared to their counterparts. Further district wise data indicates that the prevalence of anaemia is highest in districts Hoshiarpur (57.5%), Muktsar (57.4 %) followed by districts Mansa, Ludhiana (54 % each) and Jalandhar (53 %). Shaheed Bhagat Singh (SBS) Nagar district is also one of the districts where the proportion of adolescent girls

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Table 1. Percentage of school going population classified as having iron deficiency (anaemia) by degree of anaemia and by selected background characteristics, Punjab

Background characteristics	Anaemia status by haemoglobin level			
	Mild anaemia (10.0-10.9 g/dl)	Moderate anaemia (7.0-9.9g/dl)	Severe anaemia (<7 g/dl)	Any anaemia <11.0 g/dl)
Age group (in years)				
6-10	20.6	29.2	4.0	53.8
11-14	19.9	26.7	2.9	49.5
15-16	19.1	24.0	2.7	45.8
17-19	16.5	22.5	2.8	41.8
Sex				
Male	18.0	23.7	2.9	44.7
Female	20.7	29.1	3.6	53.4
Place of residence				
Rural	19.4	26.6	3.4	49.4
Urban	18.9	25.3	2.9	47.1
Education				
Non-Literate	20.5	30.8	5.1	56.4
Less than 5 years	20.0	28.7	3.6	52.3
5-9 years	19.6	25.8	2.9	48.4
10 or more years	17.0	21.8	2.5	41.3
Religion				
Hindu	19.8	26.4	3.4	49.5
Muslim	20.1	25.3	2.7	48.1
Christian	21.6	28.7	3.5	53.8
Sikh	18.9	26.0	3.1	48.0
Jain	22.5	10.6	0.0	33.1
Others	21.7	34.6	4.9	61.2
Caste/Tribes				
Scheduled Castes	19.7	28.0	3.8	51.5
Scheduled Tribes	18.2	28.1	2.3	48.6
Other Backward Castes	20.5	25.4	3.0	48.8
Others	18.3	23.9	2.6	44.8
Punjab	19.2	26.1	3.2	48.6

Source: District Level Household Survey (2015).

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Table 2. Percentage of adolescents classified as having iron-deficiency (anaemia) by degree of anaemia in districts of Punjab, 2012-13

Districts	Any Anaemia (<11.0 g/dl)	Severe Anaemia (<7 g/dl)
Gurdaspur	49.1	5.6
Amritsar	50.9	3.5
Kapurthala	47.9	2.4
Jalandhar	53.3	2.0
Hoshiarpur	57.5	3.8
SBS nagar	50.2	1.9
Rupnagar	48.9	2.5
Fatehgarh Sahib	38.6	2.3
Ludhiana	54.5	4.7
Moga	52.0	3.7
Ferozpur	51.2	3.1
Muktsar	57.4	5.6
Faridkot	47.0	4.3
Bathinda	47.4	3.0
Mansa	54.1	3.5
Sangrur	38.7	2.0
Patiala	43.2	1.7
SAS Nagar	46.3	3.3
Barnala	39.0	2.8
Tarn Taran	47.2	1.9
Punjab	48.6	3.2

Source: District Level Household Survey, 2015

suffering from anaemia is the higher than the state average (Table 2). One-half of the adolescent girls suffer from some form of anaemia. About 48.6 per cent of adolescent girl in SBS Nagar district have anaemia levels of <11.0g/dl while 1.9 per cent of them suffer from severe anaemia.

MATERIALS AND METHODS

Keeping in view the high anaemia levels in the State especially among the adolescent girl a study was conducted in SBS Nagar district wherein 150 adolescent girls studying in government school were included in the study. Blood test to check the haemoglobin (Hb) levels of adolescent girls

were conducted by the health officials from health department. Blood tests were conducted after obtaining consent from the adolescent girls. Data on socio-economic background of respondents, source and treatment of drinking water and eating habits was collected using interview schedule.

RESULTS AND DISCUSSION

The primary data reveal that all the adolescent girls tested for haemoglobin suffered from some form of anaemia. About seven out of every ten girls had moderate level of anaemia which means that their hb levels were from 8 g/dl to 10 g/dl. About one-fifth of them suffer from severe anaemia (19

%) with hb levels as low as between 6 g/dl to 8 g/dl and only three per cent of them had mild anaemia i.e. the hb levels were between 10 g/dl to 12 g/dl.

Socio-economic Indicators

The majority of adolescent girls who suffer from severe or moderate anaemia were in the age group of 14 to 16 years. Further the data revealed that among the adolescent girls who had severe or moderate anaemia, a majority resided in urban areas. (69 % in cases of severe anaemic and 63 % in case of moderately anaemic). Among the social indicators caste is an important factor as it has bearing on the food intake of the family and in turn the nutritional status of the family members. Anaemia is directly affected by dietary intakes so it is interesting to know the differences in the prevalence of anaemia among the SCs and non-SCs. The state level NFHS-4 data indicated that the prevalence of both mild and moderate anaemia among the SCs was high in Punjab. The data of the present study in SBS Nagar district is in line with the state level data and indicates that about eight out of every ten adolescent girls who suffered from severe and moderate anaemia belonged to SC category (Table 3).

Joint family system is rapidly being replaced with nuclear family system. This is probably due to urbanization along with migration especially in case of SBS Nagar which belongs to the NRI belt and most of the family members are NRIs which has led to disintegration of joint family system in this belt. The data of the present study indicates that majority of the respondents suffering from any type of anaemia lived in nuclear families. The data on the number of members in the family in the present study indicates that the majority of adolescent girls who suffer from anaemia had 5-7 members in the family. Their proportions being as high as 57 per cent in case of adolescent girls having moderate anaemia, 52 per cent in the case of severe anaemia, closely followed by 50 per cent of the adolescent girls suffering from mild anaemia.

Ordinal position is the position of the adolescents according to the place or rank of her birth in the family. Three out of every ten adolescent girls who suffered from severe anaemia were the fourth child in the family. Similar proportions of adolescent girls (34 %) were at the third ordinal position in the family. The present study points that probably the ordinal position has certain influence on the anaemia levels of the individuals as a majority of the respondents who suffered from mild anaemia were the first child in the family.

Adolescent girls suffering from severe anaemia had monthly family income of less than Rs. 6000/- per month. Further half of them had family income between Rs.3,000/- to Rs. 6,000/- and about three out of every ten had family income less than Rs. 3,000/- per month.

Thus in the present study the adolescents who suffer from severe and moderate anaemia were in the age group of 14-16 years, resided in urban areas, belonged to nuclear families, had 5-7 members in the family and were either 3rd or 4th child in the family. They had monthly family income of less than Rs.6000/- per month. A similar study conducted by Chellan and Paul (2010) indicated that household standard of living also shows gradual decline in anaemia level among adolescent girls in the country. The prevalence of moderate to severe anaemia as indicated in the study by Chellan and Paul is high among girls with low standard of living and SC membership. The study also reveals that severity of anaemia was higher among adolescent girls belonging to urban areas than rural areas. Contrary to the common perception anaemia not only affects the lower strata as such but has its mark on well-off sections of the society as well.

Hellen Keller Institute for Girls (1996) estimated that 83.9 per cent girls between the age 12 to 18 years in rural India were found to be anaemic, the levels is high among girls with no schooling (92.7 %). The study conducted by Basu *et al* (2005) indicated that anaemia was significantly less among the urban school going children as compared

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Table 3. Socio-Economic Characteristics of Respondents.

Socio-Economic Indicators	6 to 8 (Severe)	8 to 10 (Moderate)	10 to 12 (Mild)
Age (in years)			
11 to 13	34	41	43
14 to 16	59	53	43
17 to 19	7	6	14
Residence			
Rural	31	37	50
urban	69	63	50
Caste			
General	17	18	86
SC	83	82	14
Type of family			
Nuclear	66	74	86
Joint	34	26	14
Family members (Number)			
Upto to 5	27	30	36
5 to 7	52	57	50
7 to 9	21	13	14
Ordinal Position			
1	10	19	36
2	21	30	14
3	24	34	14
4	31	12	29
5	7	3	7
6	7	2	0
Monthly Family Income (in Rs.)			
<3000	28	30	7
3000-6000	52	41	28
6000-9000	14	10	21
9000-12000	3	10	28
>12000	3	9	14

Source: Field Survey

to the rural school going ones. Socio-economic and demographic factors have a bearing on the prevalence of anaemia. In the study conducted by Deshpande *et al* (2013), 60 per cent of the adolescent girls were found to be anaemic with a

very high percentage belonging to lower socio-economic strata. These findings were similar to the study conducted by Gawarka *et al* (2006) where the prevalence was 96.5 per cent in the weaker income group and 65.18 per cent in middle or higher middle

Table 4. Source of Drinking Water and Methods of Purification of Water

Sr. No.	Source of drinking water	6 to 8 (Severe)	8 to 10 (Moderate)	10 to 12 (Mild)
1.	Well	3	2	14
2.	Running water	90	96	78
3.	Storage tank	7	2	8
	Water purification			
4.	Yes	24	3	14
5.	No	76	97	86

Source: Field Survey

group. Kapoor *et al* (1992) also reported 56 per cent in lower middle and 46 per cent in high socio-economic strata were observed to be anaemic with 2 and 28 being suffering from mild and moderate anaemia.

Source of Drinking Water

Safe drinking water is essential for the health and well being of the individuals. It is also important while studying anaemia as drinking contaminated or untreated water may lead to worm infestation which is one of the major causes of anaemia. The data revealed that the main source of drinking water of the respondents was the running water from the municipality tank. Almost all of the adolescent girls who suffer from moderate anaemia did not purify drinking water. Even among those who suffer from severe anemia three-fifths of the adolescent girls did not purify water. Among those who purify water, 16 per cent use filter for water purification and rest boil the water only during illness.

Eating Patterns of the Respondents

Eating habits are changing rapidly especially among the adolescents. With attractive packaging and easy availability of junk food adolescents are attracted towards it. This type of food provides them with instant energy and fulfills their requirements of calories but the need of other nutrients is not met from such kind of food. It is recommended that adolescents must eat green leafy vegetables and fruits daily to meet their daily requirements of vitamins and minerals. In order to ascertain eating

habits among the adolescent girls, the frequency of eating different foods respondents was assessed. The data (Table 5) indicate that about one-fourth of the adolescent girls who suffer from severe anaemia eat junk food daily. Around 36 per cent of the adolescent girls who had moderate or mild anaemia reported that they eat junk food only once in a month.

Green leafy vegetables which are rich iron sources are preferred once a week in diet by 38 per cent of the adolescent girls who suffer from severe anaemia. While their proportions were half in case of adolescent girls who had moderate levels of anaemia. In case of adolescents who had mild anaemia a majority (three out of every ten) preferred to eat green leafy vegetables twice a week. Milk was never consumed by 34 per cent of the adolescent girls who suffer from severe anaemia while 54 per cent of those who had moderate anaemia never consumed it. Only 14 per cent of the girls having mild anaemia consumed milk daily. Non-vegetarian foods are one of the richest sources of iron. These food items were never consumed by 45 per cent adolescent girls having severe anaemia, 76 per cent of adolescent girls having moderate anaemia and 43 per cent of those having mild anaemia.

Midday meal is provided to the adolescents to improve the school drop out rates and also to provide at least one healthy meal in a day. The study indicates that 33 per cent girls bring lunch from home and they had midday meal also and 11 per cent neither bring lunch from home nor had midday

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Table 5. Eating Patterns of Respondents

Sr. No.	Frequency of Eating Food Items	6 to 8 (Severe)	8 to 10 (Moderate)	10 to 12 (Mild)
A.	Junk food			
1.	Never	14	20	22
2.	Once in a month	10	35	7
3.	Twice in a month	14	13	14
4.	Once in a week	10	19	21
5.	Twice in a week	31	13	36
6.	Daily	21	-	-
B	Green leafy vegetables			
7.	Never	3	1	
8.	Once in a month	14	5	29
9.	Twice in a month	7	4	14
10.	Once in a week	31	3	22
11.	Twice in a week	38	37	14
12.	Daily	7	50	21
C	Fruits			
13.	Never	7	4	21
14.	Once in a month	28	9	36
15.	Twice in a month	10	4	14
16.	Once in a week	21	10	14
17.	Twice in a week	17	43	7
18.	Daily	17	30	8
D	Milk			
19.	Never	34	54	36
20.	Once in a month	14	1	14
21.	Twice in a month	10	2	14
22.	Once in a week	21	6	7
23.	Twice in a week	14	10	15
24.	Daily	7	27	14
E	Non-vegetarian food			
25.	Never	45	76	43
26.	Once in a month	17	14	21
27.	Twice in a month	14	2	7
28.	Once in a week	10	14	7
29.	Twice in a week	7	4	14
30.	Daily	7	14	7

Source: Field Survey

meal a school, thus they are deprived of nutrition at a very crucial stage of their life.

CONCLUSION

The study indicated that all the adolescent girls tested for haemoglobin in the present study suffered from some form of anaemia. Seven out of every ten girls had moderate level of anaemia, about one-fifth of them suffer from severe anaemia. The adolescent girls who suffer from severe and moderate anaemia were in the age group of 14-16 years, resided in urban areas, belonged to nuclear families, had 5-7 members in the family and were either 3rd or 4th child in the family. They had monthly family income of less than Rs.6000/- per month. Almost all of the adolescent girls who suffer from moderate anaemia did not purify drinking water. Even among those who suffer from severe anemia three-fifths of the adolescent girls did not purify water. Eating patterns of the respondents indicate that about one-fourth of the adolescent girls who suffer from severe anaemia eat junk food daily. In case of adolescents who had mild anaemia a majority (three out of every ten) preferred to eat green leafy vegetables twice a week. Non-vegetarian foods were never consumed by 45 per cent adolescent girls having severe anaemia. The study indicates that 33 per cent girls bring lunch from home and they had midday meal also and 11 per cent neither bring lunch from home nor had midday meal a school, thus they are deprived of nutrition at a very crucial stage of their life.

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