

ORIGINAL ARTICLE

EFFECT OF SOCIO-DEMOGRAPHIC PROFILE AND DIETARY PREFERENCE ON PREVALENCE OF ANAEMIA IN FEMALES OF CHILD BEARING AGE

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Background: Iron deficiency anaemia during pregnancy has devastating consequences for mother and as well as foetus. Its incidence is much more in developing countries where it is affected and aggravated by various factors. The relative scarcity of data about iron deficiency anaemia in this region merited this study.

Methodology: A cross sectional study was carried out at Ayub Teaching Hospital, Abbottabad in the months of June and July 2013. Patients admitted in gynaecology units A, B and C were studied. Non-probability convenience sampling technique was used. **Results:** A total of 241 patients responded to the questionnaire. 68.5% female were anaemic. 50.3% anaemic patients belonged to lower socioeconomic class. 46.1% anaemic patients reported not using contraceptive measures. Out of 96 patients who took vegetarian diet, 65 were anaemic. 58.1% anaemic patients belonged to rural area. **Conclusion:** Anaemic patients were mostly vegetarians, those having lower intake of citrus fruits and those belonging to rural area and lower socioeconomic status.

Keywords: anaemia, child bearing age, socio-demographic profile

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INTRODUCTION

Anaemia is a condition in which the erythrocytes count (and consequently their oxygen-carrying capacity) is insufficient to meet the body's physiological needs.¹ WHO has estimated that prevalence of anaemia in pregnant women is 14 percent in developed and 51 percent in developing countries and 65–75 percent in India. About one third of the global population (over 2 billion) is anaemic. Anaemia in pregnancy is associated with adverse consequences both for the mother and the fetus.² In developing countries Iron deficiency anaemia is a serious nutritional problem given its impact on psychological and physical development, behaviour and work performance. Particularly women of child bearing age and young children are affected by anaemia. Cost-benefit studies have shown that anaemia can be effectively treated by administering medicinal iron.³ The adverse consequences of maternal anaemia may affect not only the neonates and infants but also increase the risk of non-communicable diseases when the children grows into an adult and the risk of low birth weight in the next generation.⁴

Nutritional iron deficiency is the most common deficiency disorder in the world, affecting more than one billion people. Two-thirds of children and women of child bearing age in most developing nations are estimated to suffer from iron deficiency;

one-third of them have the more severe form of the disorder, anaemia. Iron deficiency is found in all societies, developing and industrialized alike.⁴

During pregnancy, the amount of blood in body increases until there is almost 50 percent more than usual. Body needs more iron to make more haemoglobin for all that additional blood.⁵ Also extra iron is needed for growing baby and placenta. Unfortunately, most women start pregnancy without sufficient stores of iron to meet their body's increased demands, particularly in the second and third trimesters.⁶ This leads to anaemia with severe consequences. Women entering pregnancy combined with the expansion of the maternal red blood cell mass and the growing foetus's increased demands for iron. The consequences of iron deficiency anaemia in women include decreased work capacity, decreased ability to care for children, increased maternal morbidity and mortality, and poor infant and maternal outcomes of pregnancy.⁷

Objectives of this study were to know the frequency of anaemia in women of child bearing age and to describe the effect of socio demographic profile and dietary preference on anaemia.

MATERIAL AND METHODS

A cross sectional study was carried out at Ayub Teaching Hospital, Abbottabad in the months of June and July 2013. Patients admitted in gynaecology units A, B and C were studied. Non-probability

convenience sampling technique was used. Patients between the ages of 15 and 49 years admitted to the Hospital with a minimum of one day of admission were included in the study. Patients seeking follow up after a previous surgery were not included. Patients who were unconscious and unable to communicate were also excluded from the study.

Based on the relevance of questions to the healthcare services in Pakistan, questionnaire included 25 questions on various aspects of iron deficiency anaemia. Questions were regarding working status, monthly income, marital status, and area of residence, type of contraception, citrus food intake and Haemoglobin level. The study was conducted in compliance with the "Ethical Principles for Medical Research involving Human Subjects" of Helsinki Declaration. Verbal informed consent was obtained from all subjects.

All data was entered into and analysed with SPSS version 16 to calculate relative frequencies and means.

RESULTS

Study included a total of 241 patients. No patient refused the consent to fill the questionnaire. Respondents were within the age of 15–49 years with mean age of 29 SD±7.5. Out of total 241 patients, 54.8% (n=132) had come from rural areas while 33.6% and 11.6% had hailed from urban and semi-urban areas respectively. Haemoglobin level of patients ranged from minimum of 4.5 g/dl and maximum of 13.6 g/dl with mean haemoglobin level of 9.59 SD±2.03 g/dl. Out of total 241 patients, about 68.5% (n=165) patients were found to be suffering from anaemia (Figure-1).

The results showed that out of 165 anaemic patients; as many as 50.3% (n=83) women belonged to lower income group. 16.9% and 29.6% anaemic patients were from middle and lower middle socioeconomic background respectively. Anaemia was least prevalent in economically stable and satisfied women accounting for only 3% (n=5) of total anaemic patients (Figure-2).

65.6% females were anaemic housewives. 165 patients who didn't use any method of contraception were anaemic. Among anaemic patients 1.2% used oral contraceptives, 1% injectable and 20.7% any other methods of contraception. The comparison of incidence of anaemia and dietary intake showed among 96 patients who took vegetarian diet, 65 were anaemic. Anaemia incidence was significantly low in patients taking meat in their diets with as little as 3.3% were

non anaemic. Out of 165 anaemic patients 96 lived in rural areas, 56 in urban and 13 lived in semi-urban. (Table-1)

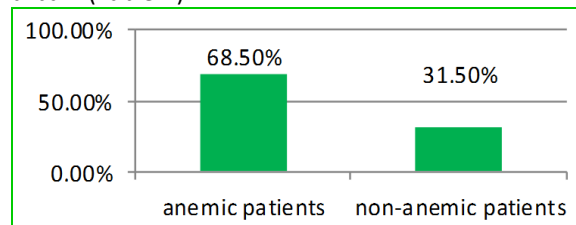


Figure-1: Prevalence of anaemia among Patients

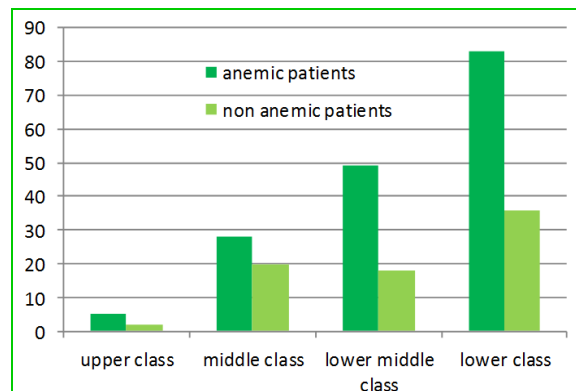


Figure-2: Anaemia prevalence in various socioeconomic classes

Table-1: Comparison of Incidence of anaemia and dietary intake

		Anaemic patients	Non-anaemic patients
Dietary intake	Vegetarians	27%	12.9%
	Non-vegetarians	3.3%	0.8%
	Mixed	38.2%	17.8%
Area of residence	Urban	23.2%	10.4%
	Rural	39.8%	14.9%
	Semi urban	5.4%	6.2%
Working status	Housewives	65.6%	31.5%
	Professionals	1.2%	0%
	Others	1.7%	.0%
Contraceptives	Used	22.3%	9.1%
	Not used	46.1%	22.4%

DISCUSSION

Anaemia is global problem being faced by people of all ages and all races particularly affecting women and children. In pregnancy, nutrient demand is increased greatly and if proper diet is not available it leads to iron deficiency anaemia. Along with diet various other factors also have a role in incidence of anaemia in pregnant women. These other factors include socioeconomic status, intake of citrus fruits, monthly income, working status, area of residence and use of contraceptive measures.

Socioeconomic status has well documented role in incidence of iron deficiency anaemia.⁸⁻¹⁰

People with better socioeconomic status and thus having approach to better resources are less likely to develop anaemia. In our study we tried to establish the relationship between prevalence of anaemia and socioeconomic status of patients admitted in the gynaecology ward. Our study also showed that anaemia is more in people belonging to low socioeconomic background. Out of total anaemic patients admitted in the ward, as much as 50.3% patients were from lower socioeconomic background depicting that poor people were more likely to develop anaemia. This has been documented by Bodnar LM *et al*⁹ and by Balarajan *et al*¹⁰ depicting greater incidence of anaemia in people of low income as compared to rich people. Balarajan *et al*¹⁰ have stated that anaemia is disproportionately concentrated in low socioeconomic groups, and that maternal anaemia is strongly associated with child anaemia. Our results are consistent with it. Our results also show that in people of upper socioeconomic status there is less incidence of iron deficiency anaemia with only 3% anaemic patients admitted in the ward belonging to upper socioeconomic status.

In our study we depicted area of residence of people and its role in development of anaemia in pregnant women. Generally, people living in urban areas have more awareness and they are more concerned about their diet as compared to residents of rural areas that is why they usually prefer meat to vegetables. Hence they have less chance to become anaemic. Our study showed that the percentage of people residing in urban areas are less anaemic as compared to village inhabitants. Out of total 165 (68.5%) anaemic patients, 23.3% belonged to urban areas, i.e., only about 1/4th of anaemic people. This result is consistent with study of Dicto A. *et al*¹¹ in which incidence of anaemia and its relation with area of residence is established.

In our study we established the relation of working status of patients and incidence of anaemia. Results showed that anaemia has mainly concentrated in housewives with as much as 95.7% anaemic patients being housewives. Working status of anaemic patients has been documented by Lone FW *et al*.¹² However our results are not consistent with their result in which lesser incidence of anaemia in housewives has been depicted. This may be related to the fact that social norms of the people of northern areas who despise working of women outside the house.

Anaemia is greatly related with dietary intake.^{13,14} Better intake of nutrients decreased the

incidence of anaemia in pregnant women. In our study we segregated the patients in two groups of vegetarian and non-vegetarians. Results have shown that there is greater incidence of anaemia among patients taking only vegetables in their diet with as many as 39.39% anaemic patients reported being strictly vegetarians. Incidence of anaemia was very low in non-vegetarians with only 4.8% anaemic patients reported as being non-vegetarian. Our results are consistent with those of Hercberg S. *et al*¹³ and Sharma DC *et al*¹⁴ in which relation of vegetarians and incidence of anaemia has been documented.

Intake of citrus fruits has a great role in prevention of iron deficiency since they are a source of ascorbic acid.¹⁴ Ascorbic acid intake is very vital for preventing development of iron deficiency anaemia. Our results have shown that 35.3% patients admitted were not taking citrus fruits in their diet; significantly correlating it with increased incidence of anaemia. Sharma DC *et al*¹⁴ have also established similar relation.

Use of contraceptives in this part of world is very low. In our study we tried to document incidence of anaemia in people using/ not using contraceptive techniques. Results showed that anaemia was very much common in females not using contraceptive measures. As much 67% female patients were anaemic who were not using contraceptives. This is consistent with results of Frith-Terhune AL *et al*¹⁵ who has indicated that those not using contraceptive were 1.4 times ($p = 0.02$) more likely to develop anaemia than current contraceptive users. Incidence of anaemia in patients using oral contraceptives was low as compared to other techniques. This result was consistent with result of Frith-Terhune, AL *et al*¹⁵ who have depicted greater safety margin of oral contraceptives as far as incidence of iron deficiency is concerned.

CONCLUSION

Anaemia was mostly present among those women of child bearing age who had low content of meat in diet. There was greater incidence of anaemia among females belonging to lower socioeconomic status.

RECOMMENDATION

The living standard of people should be improved. People living in rural areas should be told about the importance of nutritious diet and encouraged to consume more meat. Women especially of child bearing age should consume fortified food. All

pregnant women should take iron supplements during pregnancy.

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