FACTORS INFLUENCING ANAEMIA AMONG GIRLS OF SCHOOL GOING AGE (6-18 YEARS) FROM THE SLUMS OF AHMEDABAD CITY

A Verma, VS Rawal, G Kedia, D Kumar, J Chauhan
Dept. of Community Medicine, B.J. Medical College, Ahmedabad

Abstract:

Research question: What is the prevalence of anaemia among school going girls and its relationship with various socio-demographic variables?
Objective: To assess the magnitude of anaemia in school going, pre-adolescent and adolescent girls along with associated demographic variables.
Study design: Cross-sectional.
Setting: 15 randomly selected urban slums of north zone of Ahmedabad city.
Participants: 1295 randomly selected girls in the age group of 6-18 years.
Study variables: Hemoglobin level, age, body mass index, parent's education, parent's occupation, socio-economic status, consumption of tea/coffee, green leafy vegetables, lemon/sour fruits, knowledge about anaemia and status of menstruation.
Statistical analysis: Multiple regression analysis, chi-square test.
Results: Prevalence of anaemia (Hb<12 gm/dl) was 81.8% (n=1153) and had significant association with variables such as occupation of father, habit of post meal consumption of tea/coffee, consumption of green leafy vegetables and body mass index.
Conclusion: Prevalence of anaemia necessitates pragmatic intervention to improve the dietary intake, nutritional supplement of iron and folic acid (IFA) tablets.

Key Words: Prevalence of anaemia, School-going girls, Dietary factors, Knowledge about anaemia

Introduction:

Anaemia is widely prevalent in India and affects both sexes and all age groups¹. In India, pre-adolescent and adolescent girls, who constitute a sizable segment of its population, constitute a vulnerable group on account of the practice of early marriages and potential exposure to a greater risk of morbidity and mortality². Adolescence is a crucial developmental period. In adolescent girls on a marginal diet, iron deficiency may be a routine consequence of growth and skeletal development. Further, low iron stores throughout childhood may contribute to a delayed menarche and impaired immune response³. The present study highlights the problem of anaemia in school going, pre-adolescent and adolescent girls residing in the slums of Ahmedabad city. This study, being a community-based is expected to give an accurate estimation of anaemia specially that of severe type, which is normally difficult to detect through school-based studies.

Material and Methods:

The present study was carried out among girls of school going age (6-18 years) residing in 15 randomly selected slums of the north zone of Ahmedabad city. The general information about age, height, body weight, haemoglobin level (Sahli’s method), parent’s education, parent’s occupation, socio-economic status, knowledge about anaemia, status of menstruation and regarding the consumption of various diets factors were recorded on a structured questionnaire. Out of the 1295 girls, 1153(89.0%) agreed to give blood samples for haemoglobin estimation. Diagnosis of anaemia and its severity were made by using WHO guidelines⁴.

Results:

Table 1: Results from multiple regression analysis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (B)</th>
<th>Standard Error</th>
<th>Significance level (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>9.730</td>
<td>0.285</td>
<td>0.01</td>
</tr>
<tr>
<td>Occupation of father</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Base category = service)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skilled/semiskilled</td>
<td>-0.249</td>
<td>0.110</td>
<td>0.02</td>
</tr>
<tr>
<td>Business</td>
<td>-0.180</td>
<td>0.205</td>
<td>0.37</td>
</tr>
<tr>
<td>Habit of post meal consumption of tea/coffee</td>
<td>-0.478</td>
<td>0.104</td>
<td>0.01</td>
</tr>
<tr>
<td>Consumption of green leafy vegetables</td>
<td>0.541</td>
<td>0.106</td>
<td>0.01</td>
</tr>
<tr>
<td>Body mass index</td>
<td>-0.0236</td>
<td>0.001</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Note: Only the significant variables have been shown in the table.
Majority (81.8%) of girls were anaemic. The overall prevalence of mild, moderate and severe anaemia was 55.2%, 26% and 0.6% respectively. It was significantly higher among girls with the following attributes, namely: those having the post meal habit of consuming tea/coffee (94.4%)(p<0.01); whose father were working as semiskilled/skilled workers (77%)(p<0.02) and those having a BMI of 18.5 or lower (82.4%) as compared to those with BMI more than 18.5(79.7%). The prevalence of anaemia was significantly lower in girls consuming green leafy vegetables (p<0.01).

No significant relationship of anaemia was observed with socio-economic class, knowledge about anaemia, parent's education, status of menstruation and daily consumption of lemon/sour fruits.

Discussion:

The prevalence of anaemia (81.8%) among the girls in this study was higher than that observed in the urban slums of north east Delhi, which had reported 6.6 and 48.4% prevalence of anaemia in pre-menarchal and post-menarchal girls respectively. Though prevalence in the present study was lower than the prevalence of 85.3% (Hb <11 gm/dl) as reported from rural Haryana. Mehta had studied a comparable population of adolescent girls of 10-19 years from slums of Mumbai in 1998 and had reported a comparatively lower prevalence of 63.8%. Categorically, the prevalence of mild, moderate and severe anaemia in his study was 36.6%, 22.4% and 4.8% respectively while anaemic girls in his study were suffering more from severe anaemia (4.8% Vs. 0.6%). Present study had higher proportion of girls with mild anaemia (55.2% Vs. 36.6%). A higher prevalence of anaemia among girls not consuming green leafy vegetables regularly can be due to the lower availability of dietary Iron. The association of anaemia and BMI as seen in the present study is also well-established. Association observed between the habit of taking tea/coffee after meals and anaemia is due to the interference of the dietary bioavailability of iron by the tannin contents of tea/coffee. The present study had an advantage over other institution-based studies as it has the potential to detect severe anaemia cases, which are unlikely to be reported in school based studies due to the healthy worker effect.

Conclusion and Recommendations:

A high prevalence of anaemia among the urban girls of Ahmedabad slums was alarming looking to the grave consequences of anaemia. The association of anemia with various risk factors is also established by now. The present study highlights the need to develop pragmatic intervention programmes incorporating various strategies to improve dietary intake and bioavailability of iron; nutritional supplementation of iron and folic acid tablets and fortification of edible dietary items with iron.

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References: