Prevalence of nutritional deficiency signs among preschool children (1-3 years) of Hisar district of Haryana

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ABSTRACT
Clinical examination provides an overall impression of nutritional health and reveals specific signs of malnutrition when these exit and needed for planning promotional measures for the welfare of these children. In the present study 200 children were selected randomly from 100 AWCs of Hisar district of Haryana. The respondents were examined for various signs of nutritional deficiencies like vitamin A deficiency disease, anaemia, iodine deficiency disorder and others. Data on clinical examination revealed that clinical deficiency symptoms were present in many children.

Key words: AWCs, Children, Clinical examination, Deficiency disease, Malnutrition, Nutritional health.

INTRODUCTION
Preschool age is one of the most vulnerable period due to easy susceptibility to malnutrition and infection. Malnutrition during critical phases of early growth can lead not only to the stunting of physical growth, but also to sub optimal intellectual development. Under nutrition and malnutrition are major health problems among young children in developing countries of the world. Malnutrition adversely affects the growth potential of a nation and obstructs its development. It is a complex problem enmeshed in circumstances of poverty, ignorance and despair and eradication requires substantial social and economic reforms. Kumari (2005) and Rao et al (2007) also reported lower weight of pre-schoolers than standards. It was also found that majority of the children were suffering from stunting, wasting and underweight.

To combat the problem of malnutrition a large number of national programmes related to nutrition and health facilities such as Integrated Child Development Services, mid day meal, National Rural Health Mission, Public Distribution System and other supplementary feeding programs are running presently in our country. Inspite of this about 6600 children under five year of age die everyday and 46% of deaths occur due to protein energy malnutrition. According to National Nutrition Monitoring Bureau report (2006-07), diets consumed by 1-3 year old children are deficient over 500 calories. To overcome the health problems and initiate any programme for improvement in their health status, it becomes necessary to estimate the extent of deficiency diseases. Keeping this in view, the present study was conducted.

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income group followed by medium and high income group i.e. 17.5 and 10 per cent respectively.

Data collected on education of the mothers of children showed that 3 per cent of the mothers of the respondents were educated up to postgraduate level while 18.5 per cent of the mothers were graduate. It was also found that 3 per cent mothers were illiterate while 6, 35.5 and 34.5 per cent mothers were educated up to primary, middle and high school level, respectively.

Data collected on the education of the father revealed that 7.5 per cent of them were educated up to postgraduate level whereas 39.5 per cent were educated up to graduate level followed by 35.5 per cent up to high school, 10 per cent up to middle level and 4.5 per cent up to primary school level.

Presence of deficiency signs among preschool children

As depicted in Table 2, most of the subjects i.e. 56.5 per cent were having good appearance whereas, 32 per cent were in fair category of general appearances

| Table 1: Socio-personal and economic profile of families of respondents |
|-------------------------------|------------------|------------------|
| Characteristics               | Rural (n= 200)   |                 |
|                               | Frequency        | Percentage       |
| Age                           |                  |                  |
| 1-2 year                      | 84               | 42.0             |
| 2-3 year                      | 116              | 58.0             |
| Caste                         |                  |                  |
| Lower                         | 88               | 44.0             |
| Middle                        | 72               | 36.0             |
| Higher                        | 40               | 20.0             |
| Type of family                |                  |                  |
| Nuclear                       | 90               | 45.0             |
| Joint                         | 110              | 55.0             |
| Mothers Occupation            |                  |                  |
| House wife                    | 90               | 45.0             |
| Service                       | 5                | 2.5              |
| Fieldwork                     | 75               | 37.5             |
| Labour                        | 30               | 15.5             |
| Fathers occupation            |                  |                  |
| Farming                       | 31               | 15.5             |
| Service                       | 9                | 4.5              |
| Business                      | 66               | 33               |
| Labour                        | 94               | 47               |
| Income(Rs/annum)              |                  |                  |
| Low (< 25000/-)               | 94               | 47.0             |
| Average (25000-53000/-)       | 51               | 25.5             |
| Middle (Rs. 53000-96000/-)    | 35               | 17.5             |
| High (above Rs.96000/-)       | 20               | 10.0             |
| Mother's education            |                  |                  |
| Illiterate                    | 6                | 3.0              |
| Primary                       | 12               | 6.0              |
| Middle                        | 70               | 35.0             |
| High                          | 69               | 34.5             |
| Graduate                      | 37               | 18.5             |
| Post Graduate                 | 6                | 3.0              |
| Father's education            |                  |                  |
| Illiterate                    | 6                | 3.0              |
| Primary                       | 9                | 4.5              |
| Middle                        | 20               | 10.0             |
| High                          | 71               | 35.5             |
| Graduate                      | 79               | 39.5             |
| Post Graduate                 | 15               | 7.5              |
| Land holding                  |                  |                  |
| Landless                      | 96               | 48.0             |
| Marginal farmer               | 10               | 5.0              |
| Small                         | 49               | 24.5             |
| Medium                        | 35               | 17.5             |
| Large                         | 10               | 5.0              |

Table 2: Clinical assessment of children (1-3 years) n=200

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very poor</td>
<td>8</td>
<td>4.0</td>
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<tr>
<td>Poor</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>Fair</td>
<td>64</td>
<td>32.0</td>
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<tr>
<td>Good</td>
<td>113</td>
<td>56.5</td>
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<tr>
<td>Hair</td>
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<tr>
<td>Lack of lusture</td>
<td>123</td>
<td>61.5</td>
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<tr>
<td>Flag sign</td>
<td>30</td>
<td>15.0</td>
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<tr>
<td>Thinness</td>
<td>16</td>
<td>8.0</td>
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<tr>
<td>Good</td>
<td>31</td>
<td>15.5</td>
</tr>
<tr>
<td>Eye</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night blindness</td>
<td>4</td>
<td>2.0</td>
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<tr>
<td>Pale conjunctiva</td>
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<tr>
<td>Xerosis conjunctiva</td>
<td>7</td>
<td>3.5</td>
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<tr>
<td>Corneal xerosis</td>
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<td>6.5</td>
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<tr>
<td>Xerophthalmia</td>
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<td>2.0</td>
</tr>
<tr>
<td>Bitot's spot</td>
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<td>2.0</td>
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<tr>
<td>Good</td>
<td>158</td>
<td>79.0</td>
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<tr>
<td>Skin</td>
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<td></td>
</tr>
<tr>
<td>Xerosis</td>
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<td>5.0</td>
</tr>
<tr>
<td>Follicular hyperkeratosis</td>
<td>11</td>
<td>5.5</td>
</tr>
<tr>
<td>Ecchymoses</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Pellagrous dermatosis</td>
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<td>5.0</td>
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<tr>
<td>Good</td>
<td>167</td>
<td>83.5</td>
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<tr>
<td>Nails</td>
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<tr>
<td>Normal</td>
<td>178</td>
<td>89.0</td>
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<tr>
<td>Koilonychias</td>
<td>22</td>
<td>11</td>
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<tr>
<td>Face</td>
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<tr>
<td>Normal</td>
<td>187</td>
<td>93.5</td>
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<tr>
<td>Diffuse depigmentation</td>
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<td>6.5</td>
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<tr>
<td>Moon face</td>
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<tr>
<td>Lips</td>
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<tr>
<td>Angular</td>
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<tr>
<td>Angular stomatitis</td>
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<tr>
<td>Angular scars</td>
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<td>-</td>
</tr>
<tr>
<td>Good</td>
<td>196</td>
<td>98.0</td>
</tr>
<tr>
<td>Gums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spongy bleeding gums</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Good</td>
<td>196</td>
<td>98.0</td>
</tr>
<tr>
<td>Hb level</td>
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<td></td>
</tr>
<tr>
<td>Anemia(Hb&lt;11g/dl)</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>
followed by poor and very poor i.e. 7.5 and 4 per cent respectively. The 61.5 per cent of the respondents had lack of luster followed by flag sign (15%) and thinness (8%), 15.5 per cent of the respondent was in ‘good’ category. During the survey of the respondents various eye diseases were observed. Out of 200 respondents 79 per cent were in ‘good’ category whereas 2 per cent respondents had night blindness. Symptoms like pale conjunctiva (5%), xerosis conjunctiva (3.5%), and corneal xerosis (6.5%), xerophthalmia 2 per cent and bitot’ it was observed that 83.5 per cent respondents were having good skin. Normal nails and normal face were noticed in 89 and 93.5 per cent of the respondents, respectively. Angular stomatitis and spongy bleeding gums were observed in 2 per cent of the respondents.

All children were found anemic (Hb<11g/dl) according to cutoff values given by WHO.

Rachna et al (2006) clinically assessed 300 children (3-5 years) and found that 10 per cent of the respondents were suffering from pale conjunctiva, 1 per cent of respondents had xerosis conjunctiva, 1.67 percent had vitamin deficiency and 5 per cent respondents showed mottled enamel.

CONCLUSION
The study indicated that there were many number of children having deficiency symptoms. These children were affected due to deficiency of one or more nutrient in diet. Inclusion of more food stuffs especially fruits, vegetables, milk and milk products, whole cereals and pulses in the daily diet is recommended for improving their nutritional status.

REFERENCES