Prevalence of Malnutrition among Under-five School Children

Authors

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Abstract

Background: Under-five children are most vulnerable group and their nutritional status and mortality rate is a sensitive indicator of community health and nutrition of a country. The study was carried out to Assess Prevalence of Malnutrition among Under-five School Children.

Materials & Methods: Convenience sampling method used to select 140 school children in the age group 2 ½ to 5 Years from selected schools at Alankuppam, Puducherry, India.

Results: Prevalence of severe malnutrition more among boys 4 (6.3%) compare to the girls 0 (0) based on Weight for Height Z score of school children. Prevalence of Moderate Malnutrition more among boys 15 (23.4%) and Girls 13 (17.1%) based on Weight for Height Z score of school children. Prevalence of malnutrition more among boys compare to the girls based on Weight for Height Z score of school children. Correlation of Height and Weight of under-five school children with selected demographic variables reveals that mother age have relationship with malnutrition Z score of school children, which has significant at p > 0.04 and with BMI of School children significant at p > 0.02.

Keywords: Underfive Children, Under nutrition, Obesity, Overweight, Growth and development.

Introduction

Malnutrition literally means “bad nutrition” and technically includes both over and under nutrition. In the context of developing countries, under-nutrition is generally the main issue of concern, though industrialization and changes in eating habits have increased the prevalence of over-nutrition.¹

Under five children are most vulnerable group and their nutritional status and mortality rate is a sensitive indicator of community health and nutrition of a country. Malnutrition accounts for 50% of the under-five deaths² and 5.9 million children under the age of 5 years died in 2015³.

Malnutrition influence growth and development, cognitive function of the children and probability of often getting infection.

India is one of the countries with the highest burden of under nutrition among children. Socio economic factors such as unemployment, poverty, illiteracy, lack of women empowerment, health care inequalities, inadequate implementation of national policy contributes increased health problems among underfive children including malnutrition. Adequate nutrition is essential in early childhood to ensure healthy growth, proper organ formation and function, a strong immune system and neurological and cognitive development.⁶
Research Title
A Study to Assess Prevalence of Malnutrition among Underfive School Children at Alankuppam, Puducherry, India.

Objectives
1. To assess prevalence of malnutrition among underfive school children
2. Determine the Correlation between Malnutrition and selected socio demographic variables of underfive school children.

Methods
Community based Cross Sectional Design was carried out to identify malnutrition among school children at Alankuppam, Puducherry, India. Alankuppam rural area is located about 20 kms towards Puducherry west. There is one Primary Health Sub Centre is available to meet the health care needs of the people. There are total 4960 population and includes children with the age 0–5 years is 441 which make up 8.9% of total population of village.

Ethical Consideration
Permission was obtained from Institutions Head. Informed consent was obtained from parents prior to the data collection and their confidentiality was maintained throughout the study.

Sampling Technique
Convenience sampling method used to select 140 school children in the age group 2 ½ to 5 Years from selected schools at Alankuppam, Puducherry, India.

Research Instrument
The tool consists of two sections:
Part I : Socio Demographic information of the underfive School children includes parents age, education, occupation, income and date of birth and gender of the underfive school children.
Part II : Anthropometric Measurement Scale Such as Height, Weight and Mid arm Circumference.

Scoring Interpretation
Score was interpreted based on WHO Standards (Z-Score) as follows
Normal < -2 z-score < +2
Moderate malnutrition < -3 z-score < -2
Severe Malnutrition z-score < -3

Data Collection Procedure
The data was collected for a period of 2 weeks in the month of February 2018. After obtaining the permission from the private & Government schools of Alankuppam, Puducherry and the 140 School children were selected using convenience sampling. About 15 – 20 participants were assessed per day in standard/Class wise for Anthropometric measurements such as Height, Weight and Mid Upper Arm Circumference using Weighing scale, Height measuring stand and Inch tape. Demographic profile was collected by sending the Questionnaire tools to the parents through school diary.

Data Analysis Procedure
Descriptive statistics
- Mean, Median, Percentage, Frequency was used to describe the sociodemographic variables.
- BMI was calculated based on the height and weight of the respondents.

Inferential Statistics
- Z Score was calculated to assess the level of Malnutrition
- Correlation to measure the strength of the relationship between Malnutrition and selected socio demographic variables..

Results
Table 1: Distribution of age and gender of Underfive School Children

<table>
<thead>
<tr>
<th>Age Range</th>
<th>no.</th>
<th>%</th>
<th>Boys</th>
<th>no.</th>
<th>%</th>
<th>Girls</th>
<th>no.</th>
<th>%</th>
<th>Total</th>
<th>no.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 months</td>
<td>1</td>
<td>100.0</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-41 months</td>
<td>9</td>
<td>56.3</td>
<td>7</td>
<td>43.8</td>
<td>16</td>
<td>11.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>42-53 months</td>
<td>29</td>
<td>36.7</td>
<td>50</td>
<td>63.3</td>
<td>79</td>
<td>56.4</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>54-60 months</td>
<td>25</td>
<td>56.8</td>
<td>19</td>
<td>43.2</td>
<td>44</td>
<td>31.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>45.7</td>
<td>76</td>
<td>54.3</td>
<td>140</td>
<td>100.0</td>
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</tr>
</tbody>
</table>
Table 1 reveals that, majority of the school children were in the age group of 42 - 53 months 79 (56.4%), and regarding gender most of them were girls 76 (54.3%).

Table 2 reveals that, 4 (6.3%) of boys and none of the girls have Severe Malnutrition, 15 (23.4%) of boys and 13 (17.1%) of girls have Moderate Malnutrition.

Table 3 reveal that, prevalence of acute malnutrition based on the percentage of the median Mild malnutrition (<80%) & Moderate Malnutrition (<80% and >= 70%) were 10 (7.1%) respectively.

**Conclusion**

Prevalence of malnutrition more among boys compare to the girls based on Weight for Height Z score of school children.

Prevalence of severe malnutrition more among boys 4 (6.3%) compare to the girls 0 (0) based on Weight for Height Z score of school children.

Prevalence of Moderate Malnutrition more among boys 15 (23.4%) and Girls 13 (17.1%) based on Weight for Height Z score of school children.

Prevalence of acute malnutrition based on the percentage of the median Mild malnutrition (<80%)
& Moderate Malnutrition (<80% and >= 70%) were 10 97.1%) respectively.
According to z score malnutrition more common among children in age group of 30 – 42 months.
Regarding distribution of School Children based on BMI, 49% of children only have normal BMI (5 - 85th %ile), 41% of them were under nutrition (< 5%ile) and 10% of them were Overweight and Obese (> 85%ile).
Correlation of Height and Weight of school children with selected demographic variables reveals that mother age have relationship with malnutrition Z score of school children, which has significant at p > 0.04 and with BMI of School children at p > 0.02.
Health status and prevalence of malnutrition among school children and importance of nutrition in growth and development was explained to institutional heads.
Teachers and Parents were educated through distribution of pamphlets regarding Growth and Development and Healthy Nutrition.

Recommendations

- Nutritional survey need to be carried out among underfive school children.
- Knowledge on malnutrition and healthy diet for underfive school children among school teachers and parents to be assessed.
- Hands on training for teachers and parents on anthropometric measurements and growth and development need to be implemented.

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3) Institutional Heads of Private & Government Schools of Alankuppam, Puducherry
4) Directorate of Health & Family Welfare Services, Puducherry, India.

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3. UNICEF. (April, 2014). Committing to child survival a Promise Renewed