



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

*International Journal of Recent Scientific Research*  
Vol. 6, Issue, 6, pp.4597-4601, June, 2015

**International Journal  
of Recent Scientific  
Research**

## RESEARCH ARTICLE

# NUTRITIONAL STATUS OF INFANT CHILDREN IN SELECTED RURAL AREAS AT NELLORE

Mary Vineela Pathri<sup>1</sup>, Katari Kantha<sup>\*2</sup> and Arumugam Indira<sup>3</sup>

<sup>1,2</sup>Department of Community Health Nursing, Narayana College of Nursing, Nellore, Andhra Pradesh, 524003, India

<sup>3</sup>Principal, Narayana College of Nursing, Nellore, Andhra Pradesh, 524003, India

### ARTICLE INFO

#### Article History:

Received 2<sup>nd</sup>, May, 2015  
Received in revised form 10<sup>th</sup>,  
May, 2015  
Accepted 4<sup>th</sup>, June, 2015  
Published online 28<sup>th</sup>,  
June, 2015

#### Key words:

Nutritional Status, BMI,  
Malnutrition, Infants.

### ABSTRACT

**Introduction:** Children are the future of nation and society. Irrespective of education, income and social class differences, malnutrition contribute to 60% of deaths in every year. Among worldwide population, 55% of children less than 5 years of age found as under nourished. In India, 6.1 million school age children are stunted. Hence an attempt is being made to find the nutritional status of infant children in selected rural areas at Nellore, Andhrapradesh.

**Objective:** To assess the nutritional status of infant children and to find association between anthropometric measurements and nutritional status of infants.

**Material and methods:** The present community based cross-sectional study was conducted in rural areas of Nellore City of Andhrapradesh state (India) from 15/12/13 to 20/1/14. The study sample included 71 infants selected by convenience sampling method.

**Results:** In the present study 71 infants included in the study, in that, 56(78.87%) infants were normal weight, 10 (14.08%) were under weight and 5(7.05%) were overweight. Among these 71 infants, 27 (38.02%) were normally nourished, 24 (33.8%) were mild malnourished, 12(16.9%) were moderately malnourished, 5 (7.04%) were severely malnourished and 5(7.04%) were over nourished. Multivariate analysis for height and weight with iron, protein and calories were done. It has shown that there is a significant relationship between height and weight with iron, protein and calories intake at  $p=0.05$  level. In this study statistically significant association was found between Nutritional status of the children with the age of the child, gender, feeding pattern, number of children in family, birth order, type of family, food pattern, use of oil and fast food, number of meals and inclusion of fruits.

**Conclusion:** The above results shown that there is a significant relation exists between nutritional status of the infants with the BMI and the BMI will be influenced with iron, protein, and calories intake of the Infant Children.

**Copyright © Katari Kantha et al.** This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

## INTRODUCTION

Nutrition is the science of food and its relationship to health of an individual. Nutritional assessment is a process or a series of measurements that define nutritional status among children. It is designed to identify individual who without change or intervention will develop malnutrition.<sup>2&4</sup>

Despite all efforts undertaken both nationally and internationally, poor nutritional status is still a fundamental cause of disease and shortened life span. Most people are aware that many factors are either directly or indirectly responsible for under nutrition, including insecure food supply, lack of basic education, inadequate health services, deteriorated environment, low income and inadequate empowerment.<sup>4</sup>

Nutrition not only affects our body's ability to maintain it's self but also helps to manage the risk for developing disease. Where as balanced and sufficient nutritional intake is most essential for children to promote optimal growth and development and maintain health. Unavailability and scarcity of suitable food, lack of money for purchasing food, traditional believes and taboos about diet and insufficient balanced diet are resulting in malnutrition.<sup>4</sup>

Before the nurse can determine a child nutritional status, a nutritional assessment must be made, based on the data found on a physical examination, including anthropometric measurements, dietary history and laboratory assessment. The health and productivity of an individual or a population are related to nutritional wellbeing. Knowledge of nutrition status provides the basis for formulating individual nutrition as well

*\*Corresponding author: Katari Kantha*  
Department of Agronomy, College of Agriculture, Vellayani

as community based nutrition intention and education programme.

### **Need For Study**

The World Bank estimates that India is one of the highest ranking countries in world for the number of children suffering from malnutrition.

Childhood malnutrition rates in India are extraordinarily high among the highest in the world, with nearly one-half of all children under 3 years. Nearly a quarter of all children are born with a major nutritional disadvantage low birth weight, that is less than 2.5 Kg at birth.<sup>1</sup>

According to the records of children in India 2012, a statistical appraisal by the Union ministry of statistics as evidenced by wasting results in a child being too thin for his/her height. While 19.8% of children are less than 5 years of age and 43% of children's are under weight for their age.<sup>3</sup> Nutrition is a complex science that involves more than forty nutrients; nutrients are those substances that are essential for growth and health. India has a highest rate among child malnutrition and it continuous to be a major public health problem in developing countries around the world.<sup>7</sup>

The effect of nutrition deficiency is a disturbance in mood, emotion, thought, and perception of behavior. Nutritional assessment will continue to be an essential part of the nursing role and as nurses we have a professional duty to develop our knowledge and skills in this area.<sup>6</sup> Since studies on nutritional status are scanty from this region of Nellore (Andhrapradesh-India) and there is no reported community based study in Nellore city of this region, an attempt is being made to find out the nutritional status of infant children in selected rural areas at Nellore.

## **MATERIALS AND METHODS**

### **Research Approach**

Quantitative research approach was adopted to assess the nutritional status of infant children.

### **Research Design**

Descriptive design was used to assess the nutritional status.

### **Setting of the Study**

The study was conducted in selected villages at Nellore like Muthukur, Akkuthotta, N.T. R. Nagar, Rayapupalem, Vaddypalem, and Dhanalakshmi puram.

### **Target Population**

The population for present study was infant children, residing in selected villages, Nellore.

### **Accessible Population**

The population for the present study was infant children.

### **Sample**

Infant children residing in selected villages of Nellore.

### **Sampling Technique**

Non probability convenience sampling technique was used to select the subjects.

### **Content Validity**

Content validity was obtained from the experts in community, child health and maternal health departments. Modifications were made based on the suggestions and corrections given by the experts.

### **Ethical Clearance**

Ethical clearance was obtained from the ethical committee of Narayana Medical College Hospital, Nellore.

### **Data Collection Procedure**

After getting permission from medical officer of the PHC, concerned authority and consent from the subjects data collection procedure was carried out from 15/12/13 to 20/1/14. The sample consists of infant children in selected villages at Nellore.

Non probability convenience sampling technique was used to select the subjects. The time scheduled for data collection was 8am -1pm. Questionnaire and observational check list were used to collect the data.

### **Data analysis**

The data was analyzed in terms of objectives of the study by using descriptive statistics and inferential statistics.

### **Descriptive Statistics**

Mean, Frequency, percentage and standard deviation.

### **Inferential Statistics:**

chi -square test to find the association between the nutritional status of infants children with their socio-demographic variables and multivariate analysis to find the association between anthropometric measurements and nutritional status.

## **RESULTS AND DISCUSSION**

A database was created in Microsoft Excel software 2007 version. Data analysis was carried out with the help of statistical measures such as percentages, proportion, and Chi-square test for trend using software Graph Pad Prism Version 5.01 and Open Epi Version 2.3.

**Analysis And Interpretation Of Infants**

The findings of the infants described in the following headings

**Table 1** Frequency and percentage Distribution of Infant by Their Age

Age of the child	Frequency	Percentage
1-3month	13	18.2
4-6 month	20	28.2
7-9 month	19	26.8
10-12 month	19	26.8
<b>Total</b>	<b>71</b>	<b>100</b>

The above table shows that out of 71 infant 13(18.2%) are 1-3 month age group, 20 (28.2%) are 4-6 month age group, 19(26.8%) are 7-9 month age group, 19(26.8%) are 10-12 age group.

**Table 2** Frequency and Percentage Distribution of Infant by Their Gender

Gender	Frequency	Percentage
Male	36	50.7
Female	35	49.3
<b>Total</b>	<b>71</b>	<b>100</b>

**Table 3** Multi Variate Analysis Test For height Protein, Fat, Iron, CHO, & Total Calorie Multivariate Tests<sup>d</sup>

Effect	Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power <sup>b</sup>	
Intercept	Pillai's Trace	.998	1.547E3 <sup>a</sup>	5.000	17.000	.000	7735.920	1.000
	Wilks' Lambda	.002	1.547E3 <sup>a</sup>	5.000	17.000	.000	7735.920	1.000
	Hotelling's Trace	455.054	1.547E3 <sup>a</sup>	5.000	17.000	.000	7735.920	1.000
	Roy's Largest Root	455.054	1.547E3 <sup>a</sup>	5.000	17.000	.000	7735.920	1.000
Height	Pillai's Trace	3.253	1.564	125.000	105.000	.009	195.506	1.000
	Wilks' Lambda	.002	1.872	125.000	88.598	.001	227.446	1.000
	Hotelling's Trace	19.549	2.408	125.000	77.000	.000	301.053	1.000
	Roy's Largest Root	12.442	10.451 <sup>c</sup>	25.000	21.000	.000	261.272	1.000

a. Exact statistic  
 b. Computed using alpha = .05  
 c. The statistic is an upper bound on F that yields a lower bound on the significance level.  
 d. Design: Intercept + Height

**Table 4** Multi Variate Analysis Test For Weight, Protein, Fat, CHO, Iron,& Calorie Multivariate Tests<sup>d</sup>

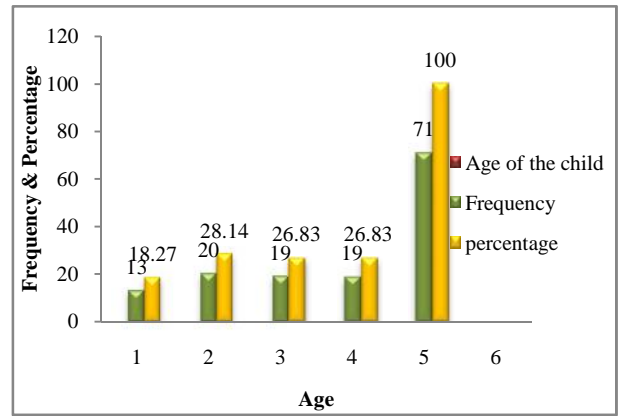
Effect	Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power <sup>b</sup>	
Intercept	Pillai's Trace	.998	1.699E3 <sup>a</sup>	5.000	19.000	.000	8496.027	1.000
	Wilks' Lambda	.002	1.699E3 <sup>a</sup>	5.000	19.000	.000	8496.027	1.000
	Hotelling's Trace	447.159	1.699E3 <sup>a</sup>	5.000	19.000	.000	8496.027	1.000
	Roy's Largest Root	447.159	1.699E3 <sup>a</sup>	5.000	19.000	.000	8496.027	1.000
Weight	Pillai's Trace	3.029	1.536	115.000	115.000	.011	176.690	1.000
	Wilks' Lambda	.003	1.939	115.000	98.081	.000	215.966	1.000
	Hotelling's Trace	18.135	2.744	115.000	87.000	.000	315.557	1.000
	Roy's Largest Root	12.650	12.650 <sup>c</sup>	23.000	23.000	.000	290.942	1.000

a. Exact statistic  
 b. Computed using alpha = .05  
 c. The statistic is an upper bound on F that yields a lower bound on the significance level  
 d. Design: Intercept + Weight

The above table shows that there is a significant association between the weight, protein, iron, fat, and CHO& calorie intake of infants.

The above table shows that out of 71 infant 36(50.7%) are males, 35(49.7%) are females.

The above table shows that there is a significant association between the height, protein, iron, fat, CHO, and calorie intake of infants.



**Fig 1** Frequency and percentage Distribution of Infant by Their Age

The above table shows that there is a significant association between chest circumference and intake of protein, fat, iron, CHO, & calorie.

**Association of Height and Calorie Intake of Infants:**

There is a significant association between height and calorie intake of infants. So, when total calorie intake increases, the height also increases. Thus, calorie intake and height are interrelated.

**Table 5** Multi Variate Analysis Test for Head Circumference and Intake of Protein, Fat, Iron, CHO, & Calorie.

Multivariate Tests <sup>d</sup>								
Effect	Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power <sup>b</sup>	
Intercept	Pillai's Trace	.997	1.190E3 <sup>a</sup>	5.000	19.000	.000	5948.518	1.000
	Wilks' Lambda	.003	1.190E3 <sup>a</sup>	5.000	19.000	.000	5948.518	1.000
	Hotelling's Trace	313.080	1.190E3 <sup>a</sup>	5.000	19.000	.000	5948.518	1.000
	Roy's Largest Root	313.080	1.190E3 <sup>a</sup>	5.000	19.000	.000	5948.518	1.000
HCircum	Pillai's Trace	2.509	1.007	115.000	115.000	.485	115.827	.987
	Wilks' Lambda	.009	1.387	115.000	98.081	.048	154.982	.999
	Hotelling's Trace	13.241	2.003	115.000	87.000	.000	230.394	1.000
	Roy's Largest Root	9.138	9.138 <sup>c</sup>	23.000	23.000	.000	210.170	1.000

a. Exact statistic  
 b. Computed using alpha = .05  
 c. The statistic is an upper bound on F that yields a lower bound on the significance level.  
 d. Design: Intercept + H Circum

The above table shows that there is a significant association between head circumference, and intake of protein, fat, iron, CHO, &calorie.

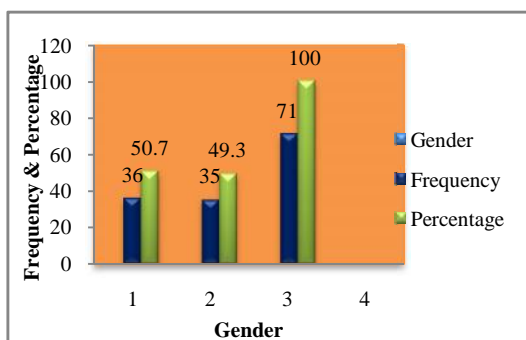
**Table 6** Multi Variate Analysis Test for Chest Circumference and Intake of Protein, Fat, Iron, CHO, Calorie

Multivariate Tests <sup>d</sup>								
Effect	Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power <sup>b</sup>	
Intercept	Pillai's Trace	.991	4.414E2 <sup>a</sup>	5.000	21.000	.000	2206.801	1.000
	Wilks' Lambda	.009	4.414E2 <sup>a</sup>	5.000	21.000	.000	2206.801	1.000
	Hotelling's Trace	105.086	4.414E2 <sup>a</sup>	5.000	21.000	.000	2206.801	1.000
	Roy's Largest Root	105.086	4.414E2 <sup>a</sup>	5.000	21.000	.000	2206.801	1.000
CCircum	Pillai's Trace	2.435	1.130	105.000	125.000	.255	118.683	.995
	Wilks' Lambda	.023	1.194	105.000	107.407	.181	121.447	.994
	Hotelling's Trace	6.665	1.231	105.000	97.000	.150	129.305	.995
	Roy's Largest Root	2.987	3.556 <sup>c</sup>	21.000	25.000	.001	74.667	.994

a. Exact statistic  
 b. Computed using alpha = .05  
 c. The statistic is an upper bound on F that yields a lower bound on the significance level.  
 d. Design: Intercept + chest circumference

**Association between Weight and CHO Intake of Infants**

There is a significant association between weight and CHO intake of infants. Thus When the CHO intake increases; the weight of the infants also increases. It shows that CHO intake influences the weight of the infants. The results are consistent with the Arumugam Indira and Katari Kantha, study shows there is significant association between weight and calorie intake of antenatal mothers .Thus the weight and calorie intake are dependent each other. So, when the caloric intake increases the weight also increases.



**Fig 2** Frequencies and Percentage Distribution of Infant by Their Gender

**CONCLUSION**

The present finding uncovered information on the nutritional status, and associated factors among infants in selected villages in Nellore district.

This study revealed that among 71 infants there were 56(78.87%) infants were normal weight, 10 (14.08%) were under weight and 5(7.05%) were overweight.

Among these 71 infants, 27 (38.02%) were normally nourished, 24 (33.8%) were mild malnourished, 12(16.9%) were moderately malnourished, 5 (7.04%) were severely malnourished and 5(7.04%) were over nourished. Multivariate analysis for height and weight with iron, protein and calories were done.

**Bibliography**

1. B.K. Mahajan. (2003). Methods in biostatistics . 6<sup>th</sup> edition. Jaypee Publications.
2. Carrou Lutz and Karen Przytulski. (2001).Nutrition and diet therapy.3<sup>rd</sup> edition. F.A Davis Publication.
3. D.ElakkuvanaBhaskara Raj.(2010). Nursing research and biostatistics. 1<sup>st</sup> edition. Emmess Publications.
4. DarshanSohi. (2009). Text book of nutrition. 2<sup>nd</sup>edition.S.Vikas and Co Publications.
5. Dr. M. S. Swaminathan. (2007).Hand book of food and nutrition. 5<sup>th</sup> edition. Bappco Publications.
6. Dutta. (2011). Text book of obstetrics including perinatology and contraception. 7<sup>th</sup> edition. New Central Books Publications.
7. K.Park. (2004), Essentials of community health nursing.4<sup>th</sup> edition. M/S Banarsidas Bhanot Publications

8. Arumugam Indira and Katari Kantha, "Nutritional status of antenatal and postnatal mothers in selected rural areas at Nellore", 6(2),(2015), International Journal of Recent Scientific Research, pp.2796-2800.

**How to cite this article:**

Katari Kantha *et al.*, Organic Liquid Manures as Foliar Nutrient Supplements in Amaranthus . *International Journal of Recent Scientific Research Vol. 6, Issue, 6, pp.4597-4601, June, 2015*

\*\*\*\*\*