

**A study to assess the nutritional status among infants who are attending pediatric OPD at Ramaiah hospitals, Bangalore**

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**Abstract**

**Background:** Good nutrition as fundamental to the child health and its importance during early years increase manifold as the weight gain during the 1st year is dramatic, from 3 kg at birth to 10 kg at the age of 1 year. According to the National Family Health survey (NFHS-5), one third of all children in Karnataka suffer from low height -for- age (stunting), 29.4% children were underweight and 18.5% children were wasting respectively. The World Health Organization (WHO) recommends that the infants be exclusively breastfeed for the first 6 months, followed by breast feeding along with complimentary foods for up to two years of age or beyond. Adequate nutrition is important during the critical period from birth to two years for the promotion of optimal growth, health and behavioral development of children. Appropriate breast feeding and complimentary feeding practices and access to adequate amounts of appropriate foods are essential for optimal infant nutrition.

**Methods:** Descriptive research design was used for this study. Hundred (100) term infants were selected using non probability convenient sampling technique from Ramaiah Memorial Hospital, Bangalore. Socio demographic data was collected using self-structured questionnaire. Weight was measured by digital electronic weighting scale and length was measured by Infantometer.

**Results:** The overall status of under nutrition among Infant was 35 % and 65 % of them were normally nourished. Out of thirty five (35) under-nourished infants, 20 % were stunted whilst underweight and wasting are estimated at 28% and 19% respectively. There was no significant association between nutritional status with selected socio- demographic variables except the variables gender of child ( $p=0.03$ ) and ( $X^2=4.703$ ).

**Conclusions:** Present study provides evidence that one third of infants are under- nourished and there was no significant association between nutritional status with

selected socio- demographic variables except the variables gender of child.

**Keywords:** Nutritional status, Infants.

### Introduction

The word “nutrition” is derived from “nutricus” which means to ‘suckle’ at the breast. Breast milk is the natural food for the infants and it is ‘species specific’<sup>1</sup>. Nutrition signifies a dynamic process in which the food that is consumed is utilized for nourishing the body and good nutrition is the basic components of health<sup>2</sup>. Nutrients that are obtained through food have vital effects on physical growth and development. Maintenance of normal body function, physical activity and health. Nutritious food is needed to sustain life and activity<sup>3</sup>.

Early childhood is the most rapid period of development in human life. Ensuring care of mothers to the child from the point of conception to the first few years of life lays the basis for healthy mental, emotional and physical growth of children<sup>4</sup>. Adequate nutrition during infancy and early childhood is essential to ensure proper growth and development of children to their full potential<sup>5</sup>. Positive and supportive feeding attitudes and techniques demonstrated by the caregiver help infants develop healthy attitudes towards food, themselves and others<sup>6</sup>.

Globally infant’s mortality rate is 18 per 1000 live births and under 5 child mortality rate is 39 per 1000 live birth<sup>7</sup>. In India, about 4 out of 10 children under five years of age are underweight, 2 out of 10 under five years age are wasted and about four children out of 10 are stunted. The infant’s mortality rate in Karnataka is 33 per 1000 live births and 25 per 1000 live births respectively<sup>4</sup>. (National Family Health Survey-4, 2015- 2016).

Malnutrition is a leading cause of childhood morbidity and mortality. The causes of infant’s mortality are inadequate nutrition, low birth weight, neonatal infection,

birth asphyxia, birth trauma and neonatal sepsis<sup>8</sup>. Childhood under nutrition accounts for 45% of under-five mortality alone and remains a key public health challenge in India. There was hardly any difference in the proportion of children (< 5 years of age) with wasting between NFHS-4 and NFHS-5; however, there was a reduction in prevalence of stunting by about 6% at the national level<sup>9</sup>.

India is home to the largest number of undernourished children. Physical growth and malnutrition situation are the comprehensive reflections of child nutritional status<sup>8</sup>. The improvement of childhood nutrition will also assist in the goal to reduce child mortality because under nutrition is an underlying cause of an estimated more than a half of all deaths of under five children<sup>10</sup>.

Malnutrition has been identified as a major health and nutritional problem in India. It is the most widespread condition affecting the health of children. It occurs particularly in children in the first year of life. Ecological factors related to malnutrition are conditioning influences, cultural influences, socio economic factors, food production and health<sup>8</sup>. Under nutrition continues to be a major public health problem in the developing countries, including India, the most vulnerable groups being women and young children. Proper nutrition is necessary for adequate growth and development of children<sup>11</sup>.

The goal of the study is to delineate malnutrition in terms of different indicators of malnutrition, to assess the prevalence of malnutrition, to examine the association of child malnutrition with chosen demographic and socio-economic factors as well as environmental and health related factors and to determine the contribution of the selected factors to a child being stunted, wasted and underweight.

## Materials & Method

This research employed quantitative descriptive research design. The study variables are nutritional status among infants. This study was conducted at Ramaiah Hospital's pediatric OPD, Bangalore. 100 term infants who were attending pediatric OPD selected through non-probability convenient sampling technique. The inclusive criteria of the study were term infants with birth weight of >2.5 kg and >37 weeks of gestation with no congenital malformation and exclusion criteria infants whose parents were not interested to participate in this study.

### Data collection procedure

Formal permission has obtained from the Medical Superintendent of Ramaiah Medical College Hospital. A total of hundred (100) subjects who fulfilled the inclusion criteria were selected for the study. The purpose of the study was explained to the parents and informed consent was taken from them. The socio demographic questionnaire was distributed to the parents and instructed them to fill each item given in the questionnaire.

The digital electronic weighting scale was placed in a flat surface and adjusted to the zero reading. Instructed the parents to undress the infant (removal of shoes, head covering and cloth) and place infant in supine position on weighing scale. The value of weight is read from the scale and recorded it. Length of the infant was measured by using an Infantometer. The Infantometer was placed horizontally on a flat surface. Instructed the parents to undress the infant (removal of shoes and head covering) and placed infant in supine position on an Infantometer (Head should touch the head board and feet should flat on the foot board). The value of length read from the scale and recorded it. The value of infant's weight and

length was plotted on WHO growth charts for assessment of nutritional status of infants.

### Statistical analysis

The data analysis was done by using descriptive and inferential statistics SPSS (version 20) was used to analysis the data. Frequency and percentage distribution were used to describe socio- demographic variables of parents, infants and feeding practices of mothers. Chi square test were used to find the association between nutritional status of infants with socio- demographic variables.

### Results

The collected data were analyzed according to the objectives of study. The findings are presented below.

Table 1: Frequency and percentage distribution of socio demographic variables of parents. n= 100.

Sl. No	Socio demographic variable:	Frequency (F)	Percentage (%)
1.	<b>Age of the father</b>		
	20-30	24	24
	31- 40	76	76
2.	<b>Age of the mother</b>		
	20-30	59	59
	31- 40	41	41
3.	<b>Education status of father</b>		
	No formal education	-	-
	primary education(1 <sup>st</sup> - 7 <sup>th</sup> standard)	-	-
	Secondary education (8 <sup>th</sup> - 10 <sup>th</sup> standard )	4	4
	Higher secondary education (PUC)	12	12
	Graduation	54	54
	Post-graduation	30	30
4.	<b>Education status of mother</b>		
	No formal education	1	1
	primary education(1 <sup>st</sup> - 7 <sup>th</sup> standard)	4	4
	Secondary education (8 <sup>th</sup> - 10 <sup>th</sup> standard )	18	18
	Higher secondary education (PUC)	25	25
	Graduation	38	38
	Post-graduation	14	14
5.	<b>Occupation of father</b>		
	Unemployed	1	1
	Government employee	23	23
	Private employee	55	55
	Self - employed	21	21
	Daily wages	-	-
6.	<b>Occupation of mother</b>		
	Homemaker	62	62
	Government employee	2	2
	Private employee	24	24
	Self - employed	12	12
	Daily wages	-	-

7.	<b>Monthly family income Rs</b>		
	<=10,001	2	2
	10,002- 29,972	15	15
	29,973- 49,961	37	37
	49,962- 74,755	25	25
	74756- 99,930	17	17
8.	<b>Place of residence</b>		
	Urban area	57	57
9.	<b>Type of family</b>		
	Nuclear family	52	52
	Joint family	48	48
10.	<b>Type of Diet</b>		
	vegetarian	40	40
	Non – vegetarian	60	60

Table 2: Frequency and percentage distribution of socio demographic variables of Infants. n=100

Sl No	Socio demographic variables	Frequency (F)	Percentage (%)
11.	<b>Age of child</b>		
	Less than 6 months	68	68
	More than 6 months	32	32
12.	<b>Gender of child</b>		
	Male	66	66
	Female	34	34
13.	<b>Birth weight of child</b>		
	2.5- 3 kg	80	80
	3.1-3.5 kg	18	18
	More than 3.5 kg	2	2
14.	<b>Birth order of the child.</b>		
	1 <sup>st</sup> child	73	73
	2 <sup>nd</sup> child	24	24
	3 <sup>rd</sup> child	3	3
	4 <sup>th</sup> or more child	-	-
15.	<b>Birth interval between present and previous child</b>		
	Not applicable	73	73
	< 2 years	2	2
	2-3 years	15	15
	>3 years.	10	10

Table 3: Frequency and percentage distribution feeding practices of mothers. n=100

Sl. no	Socio demographic variables	Frequency (F)	Percentage (%)
16.	<b>Did you feed your baby only with breast milk for the first 6 months of age?</b>		
	Not applicable (if baby is < 6 months of age).	68	68
	Yes	32	32
	No	-	-
17.	<b>When did you start complimentary foods to your baby</b>		
	Not started	69	69
	6 – 7 months	31	31
18.	<b>Type of complimentary food given to your baby</b>		
	Not applicable.	68	68
	Liquid diet	5	5
	Semi- solid diet	21	21
	solid diet	6	6
19.	<b>How many times you feed your baby with complimentary foods.</b>		
	Not applicable if baby is <6 months of age	68	68
	Less than 3 times	7	7
	3 to 5 times	20	20
	More than 5 times	5	5
20.	<b>Immunization status of child</b>		
	Not at all vaccinated	-	-
	Partially vaccinated.	-	-
	Completely vaccinated as per national immunization schedule.	100	100
21.	<b>Whether the child had any illness in the past two weeks</b>		
	No	100	100
	Yes	-	-

Frequency and percentage distribution of subject in terms of parents, infants and feeding practices of mothers.

Table 1 shows that majority of fathers (76%) were in the age group of 31-40 years and majority of mothers (59%)

were in the age group of 20-30 years. Majority (54%, 38%) father and mother respectively completed graduation. Majority (55%) of father were employed at Private organization and (62%) of mothers were Homemaker. The monthly (37%) family income is between 29,973- 49,961. Majority of the participants (57%) were resided in the urban area and (60%) of the family were non-vegetarian.

Table 2 shows that, majority of subjects (68%) belonged to the less than 6 months of age and (66 %) of them were male. Majority (80%) of infant’s birth weight was between 2.5-3 kg and more than half of the parents (73%) had single child.

Table 3 shows that, majority (68%) of mothers exclusively breast feed their infants and (31%) of mothers started complimentary foods to their infants after 6 months of age. All the Childs (100%) were completely vaccinated and none of the infant had any illness in the past two weeks.

**Frequency and percentage distribution of nutritional status among Infants.**

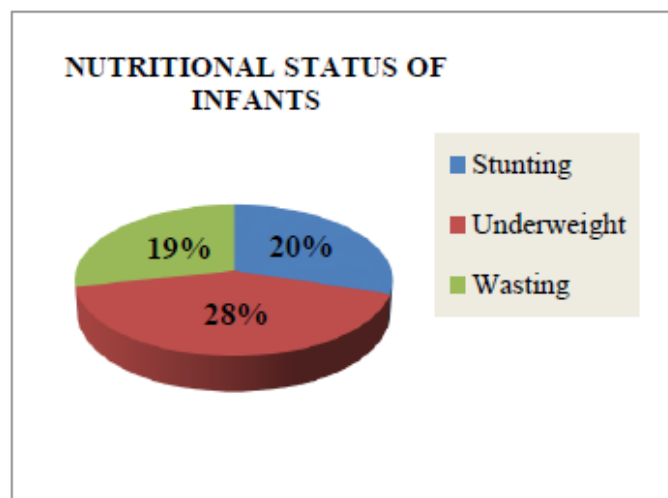


Figure 1: Frequency and percentage distribution of nutritional status among Infants.

### Association between nutritional status of infants and selected socio-demographic variables

Chi square was used to find the association between nutritional status of infants and selected socio-demographic variables. It was observed that there was no significant association between nutritional status with selected socio-demographic variables except for the variables gender of child ( $p=0.03$ ) and ( $\chi^2=4.703$ ).

### Discussion

The major findings of the study revealed that 65 % of the Infants studied were normally nourished and 35 % and wasting are estimated at 28% and 19% respectively. The study findings were in contradicted with the study conducted by Sreedhara MS, who found that 32% of infants were stunted, and 34% of them were wasted.

The **hypothesis (H1)** predicted that there would be a significant association between nutritional status of infants who are attending pediatric OPD and selected socio-demographic variables. This hypothesis was not supported by study findings except the variables gender of Childs. Hence, the research hypothesis (H1) is **rejected**. The study findings are in consistent with the study conducted by Shalu R, et al. (2018), which found that there was no significant association between nutritional status with selected socio-demographic variables.

### Limitations

The present study only includes term infants (babies with birth weight of  $> 2.5$  kg and  $> 37$  weeks of gestation) with no congenital malformation and only one hospital was taken for screening. Which does not give a true representation for all infants in Bangalore.

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