



## LRT DISEASES AND NUTRITIONAL STATUS OF 0-5 YEARS CHILDREN

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## ABSTRACT

Lower respiratory tract (LRT) diseases and infections are a leading cause of morbidity under 5 years old children. The study was conducted to assess the anthropometric status of children 0-5 years of age suffering from LRT diseases and infection. The method used for data collection was a self-designed questionnaire, which covered parameters like general information, medical information and anthropometric measurements. That indicates that poor nutrition, low immune responses are causes of LRT diseases and Infections like Pneumonia, Bronchiolitis and Bronchial Asthma. From the current study it was concluded that the incidence of LRT diseases and infections was highest amongst children aged 0-12 months. Bronchiolitis was found maximum in age group 6-12 months followed by Pneumonia and Bronchial Asthma was found maximum in children aged above 12 months. Anthropometric measurements of most of the patients were found to be below the normal ranges. So, Healthy diet is very important for all age groups. Good Nutrition strengthens immune system and causes less infections.

**KEYWORDS:** Respiratory, Infections, diseases, anthropometric, strengthens, Incidence

Nutrition is a very important part of health and development. Better nutrition is related to improved infant, child and maternal health, stronger immune systems, safer gestation and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity.

Children with good health learn better. People with appropriate nutrition are more productive. They can create opportunities to gradually break the cycles of poverty and hunger.

Ensuring an adequate, healthy diet in infants and young children in order that they can develop into healthy and productive adults. Proper infant and young child feeding are vital for improving the survival of children and promoting healthy growth and development, with the first two years of a child's life being notably important, as optimal nutrition throughout this period lowers morbidity and mortality, reduces the danger of noncontagious disease, and fosters overall development. A key element of optimal nutrition in childhood and beyond is the adequate (but not excessive) intake of necessary macro- and micronutrients. (WHO, 2011).

Lower respiratory tract infections (LRTIs) are among the foremost common infectious diseases with potential severe complications. (Khan *et al.*, 2015)

Lower respiratory tract illnesses (LRT-illnesses) in children under 5 years are a number one reason behind

morbidity, particularly in low-income countries. (Stubbe *et al.*, 2018)

Lower respiratory tract diseases and infections (LRTI) is infection which occurs below the level of the larynx and may be taken to include:

- Bronchiolitis
- Pneumonia
- Bronchial Asthma

Bronchiolitis is a disease in children less than 2 years of age that's characterized by the acute inflammation, edema, and necrosis of epithelial cells lining tiny airways and increased mucus production, resulting in bronchospasm, wheezing hyper expansion of the lungs, and hypoxia (Andrew, 2007).

Pneumonia is an acute episode with cough combined with fast breathing with age-specific cut values for increased respiratory rate. (Puumalainen *et al.*, 2008).

It has been reported that Pneumonia is an illness caused by infection, wherever the lungs become inflamed and congested, reducing oxygen exchange and resulting in cough and dyspnoea. It's the leading reason behind mortality among children beneath five years older, despite effective vaccines and nutritional and environmental interventions. (Scott *et al.*, 2008).

Bronchial asthma is an inflammatory disease of the airways which is chronic. It is characterized by

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bronchial hyperreactivity and a variable degree of airway obstruction. 5% to 10% of persons of all ages can suffer from this chronic airway disorder. (Ukena *et al.*, 2008)

## METHODOLOGY



## STUDY DESIGN

The study was carried out on respondents residing inside the geographical area of rural Town Baltana, Zirakpur, Distt. Mohali and urban Tricity Chandigarh.

For data collection for the study three hospitals of Tricity were selected- General hospital sec-16 Chandigarh, Advance mother, and child care hospital- Baltana, Verma clinic- Baltana. Samples of 200 children were selected from these three hospitals. The study covered one govt. hospital and two private hospitals of Chandigarh and Baltana.

**Sample Size:** 200 – 127 males and 73 female respondents were assessed.

**Sampling Technique:** Online survey has done through snowball sampling technique.

### Selection of Sample

#### Inclusion Criteria

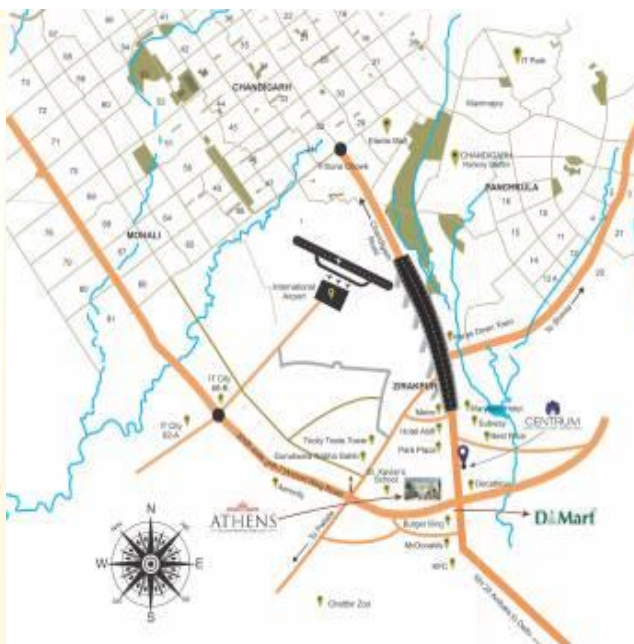
Children aged 0-5 years having LRT Disease and Infections

#### Exclusion Criteria

Children having other infections

## OBJECTIVES

The objective of the study is to find the relationship between anthropometric measurements of children having LRT Diseases and infections in children aged 0-5 years.



## Tools for Data Collection

Self-designed questionnaires to assess demographic and anthropometric information of children aged 0-5 suffering from LRT Diseases and infections. Questionnaire comprises of open-ended questions. The questions were kept simple, clear, easy to understand and asked by the parents of respondents especially mothers without any cultural and secular bias.

**Demographic Information:** Demographic information with regard to name, age, gender, family income, prevalent LRT Diseases, and infection were asked from the respondents.

**Anthropometric Measurements:** Anthropometric measurements of Height, Weight were taken. As Body measurements height, weight was important tool in the evaluation of the nutritional status of individuals and groups. BMI of the subjects was calculated.

**Pilot Survey:** The pilot survey was carried out on a few subjects to test the validity and reliability of the questionnaire. On the basis, approximate changes were made in questions to get clarity of responses.

## Statistical Analysis

Coding of data was done to save time and energy. After the data was classified, it was arranged in

form of tables. Later on, statistical tools like Mean, percentages, chi-square test, F- test for data analysis. Analysis of data was done by SPSS software (19) version and then data was classified.

## RESULTS AND DISCUSSION

Table 1 shows Bronchiolitis was found maximum in 0-6 months old children (46) followed by Pneumonia (41). Bronchial Asthma was prevalent in children aged above 12 months (20).

**Table 1: Distribution of Sample based on Age**

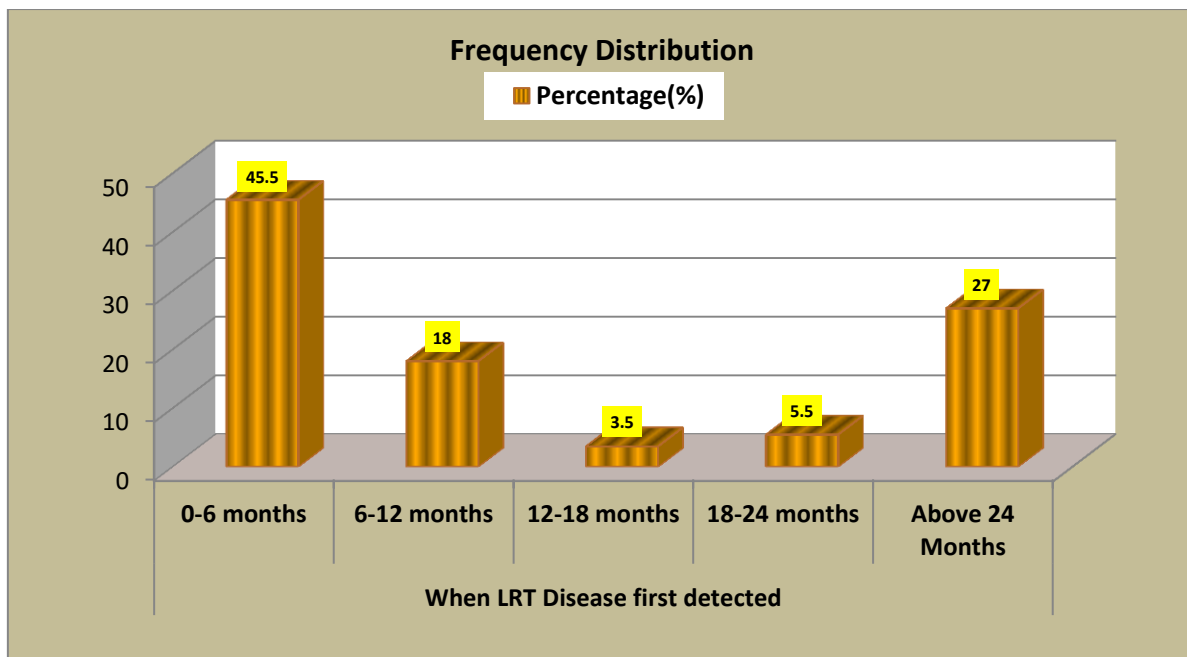
VARIABLES		Age Group				Association				
Variables	Opts	0-6 Month	7-12 Month	13-36 Month	37-60 Month	Chi Test	P Value	df	Table Value	Result
Name of LRT Disease	Bronchial Asthma	2	5	20	12	52.68	<0.001	6	12.59	Significant
	Pneumonia	41	9	17	3					
	Bronchiolitis	46	23	11	11					

**Table 2: Distribution of Sample Based on Family income**

Family Income	Frequency	Percentage (%)
Below 2000	10	5
Rs.2000-5000	48	24
Rs.5000-10000	71	35.5
Rs.10000-20000	44	22
Rs.20000-30000	21	10.5
Rs.30000-40000	3	1.5
Rs.40000-50000	2	1
Above 50000	1	0.5
<b>Total</b>	<b>200</b>	<b>100</b>

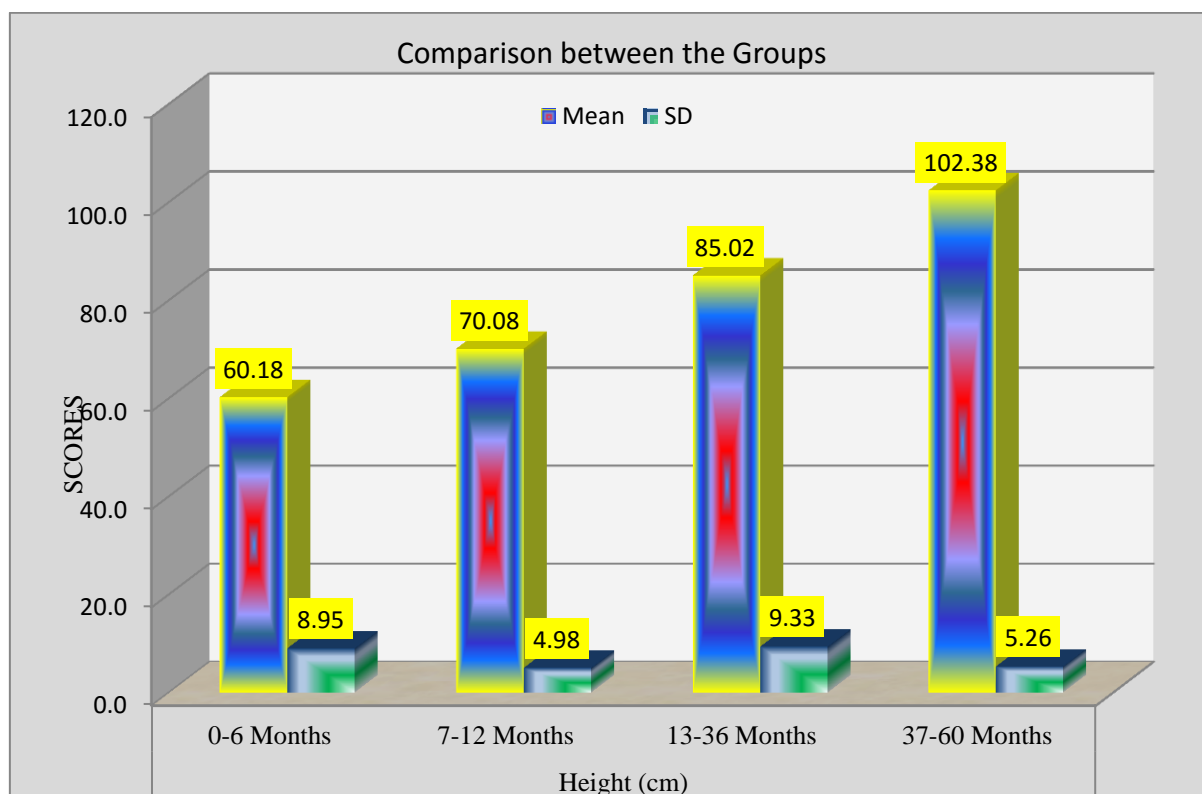
The above table 2 shows that out of 200 samples, 5% had a monthly family income below 2000 Rs, 24% had Rs 2000-5000, 35.5% had Rs. 5000-10000, 22% had Rs 10000-20000, 10.5% had Rs 20000-30000, 1.5% had Rs 30000-40000, 1% had 40000-50000 and 0.5% had above Rs.50000. Thus, maximum numbers of children had a monthly family income between Rs 5000-10000.

According to Fig. 1 LRT disease was first detected in 0-6 months age group - 45.5% followed by 27% in above 24 months age, 18% in 6-12 months age group and very less percentage showing in above 12-24 months of age groups.



**Figure 1: Distribution of Sample Based on when LRT Disease was first detected**

It is visible in Figure 2 that mean height of children aged 0-6 months is 60.18, children aged 7-12 months had 70.08, children 13-36 months old had mean height 85.02 and children aged 37-60 months had mean height 102.38.



**Figure 2: Distribution of Sample based on Height**

Figure 3 shows that mean weight of children aged 0-6 months was 6.36, children aged 7-12 months had 8.66, children 13-36 months old had mean weight 12.16 and children aged 37-60 months had mean weight 16.22.

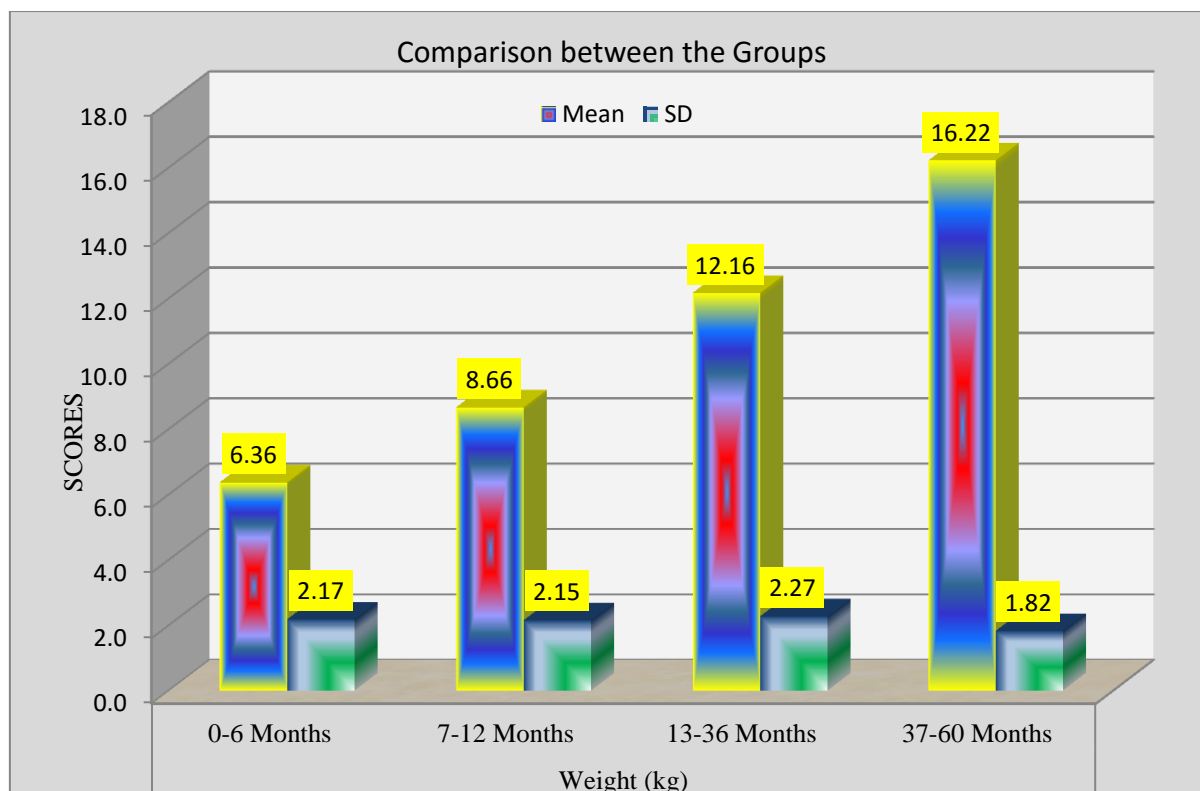


Figure 3: Distribution of Sample based on Weight

Table 3: Distribution of sample based on BMI

DESCRIPTIVE STAT AND ANOVA		Mean	SD	Minimum	Maximum	N	F	P Value	Result
BMI	0-6 Months	17.31	3.31	8.93	156.00	89	0.95	0.41	Not Significant
	7-12 Months	17.05	2.56	11.57	23.38	37			
	13-36 Months	16.80	2.38	9.23	21.53	48			
	37-60 Months	15.53	1.12	13.26	17.85	26			

According to Table 3 mean BMI of 0-6 months old children was 17.31, 7-12 months aged children had 17.05, 13-36 months old children had 16.80- and 37-60-months old children had mean BMI 15.53.

## CONCLUSION

Total numbers of samples were 200, out of which 39 samples of Bronchial Asthma, 71 of Pneumonia, 90 of Bronchiolitis (LRT diseases and infections) was detected. Bronchiolitis was found maximum in age group 6-12 months followed by Pneumonia and Bronchial Asthma was found maximum in children aged above 12 months. Yorita *et al.*, 2008 stated that Bronchiolitis is a disease in children less than 2 years of age. Scott *et al.* 2008 reported that Pneumonia

is the leading cause of mortality among children 5 years of age. Patrick Kiio *et al.* 2013 reported that severe lower respiratory tract infection in infants first caused by respiratory syncytial virus (RSV) has been associated with later pneumonia hospitalization in the children. It is a major cause of illness and even leads to death among children less than 5 years of age in sub-Saharan Africa and respiratory syncytial virus (RSV) is the most common viral cause of bronchiolitis and pneumonia in children under 5 years of age. Scott *et al.* 2008 reported that Lower Respiratory Tract diseases are the leading cause of mortality among children less than five years of age, despite effective vaccines, environmental and nutritional interventions. Thangleela *et al.* 2007 reported on 250 patients and found that maximum respondents

47.6% belong to low-income group and only 23.6% were in high income group. Mean height of children had LRT disease and infections was low as compared to reference standards, World Health Organisation (WHO 2006). Mean weight of Children who had disease was low as compared to reference standards, World Health Organisation (WHO 2006). Simpson and Mok, 1984 observed that children who have Pneumonia and Bronchiolitis were smaller in height by 2 cm and lighter in weight by 0.7 kg at birth time and also younger by 0-2 months than corresponding control children. Chandra 1981 reported that strong links are there in between malnutrition, immune dysfunction and infectious diseases, it is found that one quarter of under-five deaths and were attributable to under nutrition (represented by underweight or stunting) and could theoretically be prevented by dietary interventions which normalize anthropometric indices in early childhood. Davies and Zar, 2005 observed that malnutrition is main cause because the malnourished children suffered from impaired immunological responses and more severe infections thus increasing the risk and severity of pneumonia. In India when someone in family fall ill, we generally first apply some home remedies. We waste so much of time in treating the disease by applying methods of home remedies. When the child was not recovering from the home remedies then parents take his child to nearby doctor and now the diseases become chronic from its acute stage. That's why child has to be referred to specialists and indoor hospitalization requires to treat the LRT Disease and infection (Yorita *et al.*, 2008). So, awareness regarding prevention of Lower respiratory tract diseases among mothers should be created so that the incidence of these diseases can be reduced.

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