

## “Nutritional status assessment of under five children in urban field practice area of Mysore”

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### Abstract

**Background:** Preschool children age group is a vulnerable population which needs more attention on nutritional status.

**Objectives:** 1) To assess nutritional status of under five children with anthropometric measurements. 2) To assess the gender differences in nutritional status by using nutritional status indices.

**Material and methods:** A cross sectional study was conducted in Anganwadi's from August 2014 to December 2014. 307 preschool children in urban area were selected. Anthropometric measurements like height, weight were taken by using appropriate technique. IAP classification for underweight and WHO classification for stunting and wasting were used.

**Results:** Out of 307 children 49.51% were girls and 50.48% were boys. The mean Age, Weight in kg and Height in cm was 34 months, 11.8 kg and 86.9 cm respectively. 24.8% had under nutrition, 55% had stunting and 23.1% had wasting. There was a no statistical significant difference between the gender for weight for age and height for age, however it was found statistical significant for weight for height.

**Conclusion:** There was a high proportion of under nutrition, stunting and wasting among under five children and there was no statistically significant difference between the gender for nutritional status except for weight for height.

**Key words:** Under five children, Nutritional status

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### Introduction

Nutrition plays a key role in physical, mental and emotional development of children and much emphasis has been given to provide good nutrition to growing populations especially in the formative years of life.<sup>1</sup> The malnutrition in India is very high according to NFHS 3 data in Urban Karnataka stunting, wasting and underweight are 33.9%, 17% and 26.4% respectively.<sup>2</sup>

Anganwadi means courtyard shelter in Hindi. It is a special school for preschool children, which are mainly launched with the intention of mother and child care with nutritional supplements under Integrated Child Development Scheme in 1975. It also has a role in teaching, recreational activities and growth monitoring of preschool children.

In the field practice area of Mysore Medical College and Research Institute the study was conducted to fulfil the following objectives and this may help in capacity building towards educating mother with concern to nutrition to children.

### Objectives

1. To assess the nutritional status of under five children in urban field practice area by using anthropometric measurements.
2. To assess gender variation in nutritional status of children in urban field practice area.

### Material and Methods

A cross sectional study was conducted from August 2014 to December 2014. The study population is preschool children registered in Anganwadi. Convenient sampling method was adopted for this study and 307 preschool children in urban area were selected. Consent was taken from Anganwadi worker. A predesigned semi-structure proforma was used to collect the data. The proforma includes child name, age, gender, address and anthropometric measurements like height and weight were included.

The anthropometric measurements like height in centimetre and weight in kg were taken. Salters portable baby weigher is used to measure the weight and standardized in each Anganwadi by using known weights. Height was measured by using infant meter for less than 2 years and stadiometer was used for children more than 2 years and recorded nearest 0.1 cm.

Weight for height, Weight for age and Height for age were calculated by using Microsoft Excel and IAP classification for underweight and WHO classification for stunting and wasting were used. IAP classification included >80% is normal, 71-80% is 1<sup>st</sup> degree, 61-70% is 2<sup>nd</sup> degree and 51-60% is 3<sup>rd</sup> degree and <50% is 4<sup>th</sup> degree. According to WHO classification height for age divided into >95% is normal, 87.5-95% is 1<sup>st</sup> degree,

80-87.5% is 2<sup>nd</sup> degree and <80% is 3<sup>rd</sup> degree stunting. For wasting >90% is normal, 80-90% is 1<sup>st</sup> degree, 70-80% is 2<sup>nd</sup> degree and <70% is 3<sup>rd</sup> degree.

In our study we found that 50.48% were boys and 49.51 % were girls. (Table 2)

**Statistical analysis**

The data was entered in Microsoft excel and analysed using Epi-Info software. Descriptive statistics like mean, frequencies and percentages were calculated. Association between the gender for nutritional status parameters were analysed using chi-square test. P value ≤ 0.05 at 95% CI were considered significant.

**Results**

The nutritional status of the children classified depending on the nutritional indices. The preschool children age was categorised into <1 year (12 months), 1-2 year (13-24 months), 2-3 years (25-36 months), 3-4 years (37-48 months), 4-5 year (49-60 months). Most of the children were included in the study belongs to 2 to 3 years which was followed by 3 to 4 years, 1 to 2 years , 4 to 5 years and least was one year. The mean Age, Weight in kg and Height in cm was 34 months, 11.8 kg and 86.9 cm respectively.

**Table 1: Age group distribution of under five children**

Age group	Frequency	Percent
<1 year	22	7.2
1 to 2 years	51	16.6
2 to 3 years	109	35.5
3 to 4 years	76	24.8
4 to 5 years	49	16.0
Total	307	100.0

**Table 2: Gender wise distribution of under five children**

Gender	Frequency	Percent
Boys	155	50.49
Girls	152	49.51
Total	307	100

We found that according to IAP classification 75.2% were normal, 17.9% had 1<sup>st</sup> degree under nutrition, 5.7% had 2<sup>nd</sup> degree under nutrition, 0.6% had 3<sup>rd</sup> degree under nutrition and 0.3% had 4<sup>th</sup> degree under nutrition. (Table 3)

**Table 3: Nutritional status of under five children according to IAP classification**

Grades	Weight/Age(%)
Normal	231(75.2)
1 <sup>st</sup> degree	55(17.9)
2 <sup>nd</sup> degree	18(5.7)
3 <sup>rd</sup> degree	2(0.6)
4 <sup>th</sup> degree	1(0.3)

According to WHO classification for stunting we found that 45% were normal, 43.6% had mild impairment, 8.8% had moderate impairment and 2.6% had severe impairment. For wasting 76.9% were normal, 17.9% had Mild impairment, 4.2% had moderate impairment and 1% had sever impairment. (Table 4)

**Table 4: Nutritional status of under five children according to WHO classification**

Grades	Height/ Age (%)	Weight/ Height (%)
Normal	138(45)	236(76.9)
Mildly Impaired	134(43.6)	55(17.9)
Moderately Impaired	27(8.8)	13(4.2)
Severely Impaired	8(2.6)	3(1.0)

In our study we found that under nutrition was more common in boys compared to girls however it was statistically not significant. Stunting was more common in girls compared to boys however it was statistically not significant. Wasting was more common in boys compared to girls and it was statistically significant.(Table 5)

**Table 5: Nutritional status of under five children according to gender**

Gender	Weight/Age (%) (IAP), under nutrition		Height/Age (%) (WHO) stunting		Weight/ Height (%) (WHO) wasting	
	Present	Absent	Present	Absent	Present	Absent
Boys	43(27.7)	112(72.3)	85(54.8)	70(45.2)	45(29.0)	110(71.0)
Girls	33(21.7)	119(78.3)	84(55.3)	68(44.7)	26(17.1)	126(82.9)
Total	76	231	169	138	71	236
p value	0.22		0.940		0.01	

**Discussion**

Out of 307 children 49.51% were girls and 50.49% were boys. The mean age, Weight in kg and Height in cm were 34 months, 11.8 kg and 86.9 cm respectively.

24.8% were underweight, 55% had stunting and 23.1% had wasting.

According to UNICEF 2014 Indian statistics showed prevalence of underweight, stunting, wasting

were 44%, 48%, 20% respectively. According to NFHS3 (2005-06) data underweight, stunting and wasting in urban area was 33%, 40% and 17% respectively which was comparatively more than our study for under nutrition but stunting and wasting was more in our study.<sup>3</sup>

In a study conducted at Vododara city among children less than 5 years attending ICDS anganawadi the prevalence of malnutrition according to IAP classification for underweight were 40.5% (Grade 1), 20.1% (Grade 2) and 2.3% (Grade 3 and Grade 4) which was comparatively lower in our study.<sup>4</sup>

A study in Pune conducted by Mamulwar et al on preschool children showed the prevalence of underweight was 34.3%, stunting was 58.7% and wasting was 16.9% according to WHO classification. The prevalence of underweight (37.6%) and stunting (61.4%) was more in girls but wasting (18%) was more among boys but in our study boys had higher proportion of under nutrition and wasting but stunting was more among girls.<sup>5</sup>

A study conducted by Nirmalya kumar Sinha et al in West Bengal on nutritional status of 2-6 year old children showed underweight, stunting and wasting were 47%, 43.2% and 23.9% respectively which was more than our study results and prevalence was higher in boys which is similar to our study except for stunting.<sup>6</sup>

Another study done in Belgaum by Mathad et al, 53.4% were boys and 46.5% girls, in our study 49.51% were girls and 50.48% were boys. In their study the prevalence of underweight, stunting and wasting were 26.55%, 31.38% and 7.59% respectively and in them severe undernourished were 5.86%, 27.24% and 5.17% which is comparatively more than our study.<sup>7</sup>

Another study conducted at Bhadravati, shivamogga by Vijaykumar Mane et al. Included children between 1-3years showed severe degree of underweight, stunting and wasting of 8.6%, 12.4% and 2.9% respectively but in our study we included under five years and the prevalence of severe underweight (0.7%), stunting (2.6%) and wasting (1%) was very less but in our study the most affected malnutrition children were in 25-36 months.<sup>8</sup>

In Mysore tribal area a study on 1-5 years children was done by Renuka M et al showed 38.6% were under nutrition, 36.8% were stunting and 18.6% were had wasting which is lesser compared to our study and the study has also showed significant difference with age ( $p > 0.05$ ) but not with sex, it was similar to our study.<sup>9</sup>

## Conclusion

The proportion of underweight, stunting and wasting was higher in urban area among preschool children. The proportion of underweight, wasting was more among boys and stunting was more among girls. A statistically significant difference was found with gender and wasting.

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