

A Study on the Assessment of Nutritional Status among Children Using Anthropometric Measurements

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ABSTRACT

Aim: To assess the nutritional status of children aged 5-12 years using anthropometric measurements.**Materials and methods:** This prospective study was carried out among 200 children (100 males, 100 females) between 5 to 12 years of age in a rural village of East Godavari district, Andhra Pradesh. Anthropometric measurements were observed and data were collected for age, gender, height and weight. In this study, Indian Academy of Pediatrics (IAP) guidelines was used to categorize the severity of malnutrition, stunting status and wasting status.**Results:** Majority of the subjects were moderately malnourished with Grade-II (15%) followed by mildly malnourished with Grade-I (13.5%). Majority of the subjects were having mild stunting (22%) followed by severe stunting (15.5%). Majority of the subjects were having mild wasting (15%) followed by moderate wasting (13.5%) in the aspect of wasting status.**Conclusion:** In this study, malnutrition was found to be prevalent in 33% of subject as per IAP classification. Both male and female children were found to be almost equally susceptible to malnutrition. Anthropometric measurements can be a vital tool in identifying nutritional status at population level more accurately. Growth assessment best defines the health and nutritional status of children as health and nutrition inconviency directly hinders child growth. It is crucial that the nation should initiate timely measures to overcome malnutrition crisis by the improving nutritional status of its citizens which is imperative for a nation in its road to development.© 2022 Published by Universal Episteme Publications. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)

Introduction

According to the State of Food Security and Nutrition in the World - 2020 report, about 14% of India's population is undernourished. WHO defines malnutrition as "the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions". Undernutrition is extended into 4 major forms as wasting (low weight-for-height), stunting (low height-for-age), underweight (low weight-for-age) and micronutrient deficiency (lack of essential vitamins and minerals) [1, 2].

In an economically dynamic country like India, major changes in nutrition status of the children have been witnessed [3]. Therefore, periodical comparison studies are of great importance to study the growth and development of children and also to study both the determinants and consequences of malnutrition [4]. Anthropometry, derived from two Greek words; anthropos-"man" and metros-"measurement" is a branch of anthropology that involves the quantitative measurement of the human body. It is considered as the most important and

powerful tool in pediatrics to assess childhood nutrition and growth as they are highly sensitive to the broad spectrum of nutritional status [5].

Materials and Methods

This prospective study was carried out among 200 children (100 males, 100 females) between 5 to 12 years of age in a rural village of East Godavari district, Andhra Pradesh. Anthropometric measurements were observed and data were collected for age, gender, height and weight. In this study, Indian Academy of Pediatrics (IAP) guidelines was used to categorize the severity of malnutrition, stunting status and wasting status [6].

Results and Discussion

According to the classification of malnutrition by Indian Academy of Pediatrics (IAP), about 134 (67%) subjects were found to be normal. About 27 (13.5%) were observed with Grade-I malnutrition, 30 (15%) were observed with Grade-II malnutrition, 5 (2.5%) were observed with Grade-III malnutrition and 4 (2%) were observed with Grade-IV malnutrition.

Majority of the subjects were moderately malnourished with Grade-II followed by mildly malnourished with Grade-I (Table 1).

Table 1: Categorization of the subjects based on the classification of malnutrition by Indian Academy of Pediatrics (IAP)

Grade of malnutrition	Weight-for-age (%)	Male (%)	Female (%)	Total (%)
Normal	>80	68 (68)	66 (66)	134 (67)
Grade I (Mild)	71-80	12 (12)	15 (15)	27 (13.5)
Grade II (Moderate)	61-70	15 (15)	15 (15)	30 (15)
Grade III (Severe)	51-60	2 (2)	3 (3)	5 (2.5)
Grade IV (Very severe)	<50	3 (3)	1 (1)	4 (2)
Total		100 (100)	100 (100)	200 (100)

According to the categorization of the stunting status, about 101 (50.5%) were observed to be normal. About 44 (22%) were with mild stunting, 24 (12%) were with moderate stunting and 31 (15.5%) were with severe stunting. Majority of the subjects were with mild stunting followed by severe stunting in the aspect of nutritional status (Table 2).

Table 2: Categorization of the subjects based on the stunting status

Stunting	Height-for-age (%)	Male (%)	Female (%)	Total (%)
Normal	>95	53 (53)	48 (48)	101 (50.5)
I degree stunting (Mild)	90-95	23 (23)	21 (21)	44 (22)
II degree stunting (Moderate)	85-90	11 (11)	13 (13)	24 (12)
III degree stunting (Severe)	>85	13 (13)	18 (18)	31 (15.5)
Total		100 (100)	100 (100)	200 (100)

According to the categorization of wasting status, about 130 (65%) were observed to be normal. About 30 (15%) were observed with mild wasting, 27 (13.5%) were observed with moderate wasting and 13 (6.5%) were observed with severe wasting. Majority of the subjects were observed with mild wasting followed by moderate wasting in the aspect of wasting status (Table 3).

Table 3: Categorization of the subjects based on the wasting status

Wasting status	Weight for Height (%)	Male (%)	Female (%)	Total (%)
Normal	>90%	63 (63)	67 (67)	130 (65)
I degree wasting (Mild)	80%-90%	19 (19)	11 (11)	30 (15)
II degree wasting (Moderate)	70%-80%	12 (12)	15 (15)	27 (13.5)
III degree wasting (Severe)	<70%	6 (6)	7 (7)	13 (6.5)
Total		100 (100)	100 (100)	200 (100)

Conclusion

In this study, the prevalence of malnutrition was observed to be 33% as per IAP classification. Both male and female children were found to be almost equally susceptible to malnutrition. Anthropometric measurements can be a vital tool in identifying nutritional status at population level more accurately. Growth assessment best defines the health and nutritional status of children as health and nutrition inconviency directly hinders child growth. It is crucial that the nation should initiate timely measures to overcome malnutrition crisis by the improving nutritional status of its citizens which is imperative for a nation in its road to development.

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Conflict of interest

Nil

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