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RESEARCH ARTICLE

"ASSESSMENT OF HEALTH AND NUTRITIONAL STATUS IN CHILDREN OF AGE 2- 8 YEARS IN PRIMARY SCHOOLS AND ANGANWADI CENTERS IN ATHMAKUR VILLAGE, GUNTUR DISTRICT– A CROSS SECTIONAL OBSERVATIONAL STUDY"

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Abstract

Introduction: Malnutrition is a nutritional disorder which occurs due to the imbalance of nutrients. This has become a major concern in developing countries like India. Early detection of malnutrition helps in prevention of mortality of children.

Methodlogy: The purpose of this study was to determine whether children are aware of their nutritional condition among the age groups of2- 8 years studying in Nirmala Institutions and government schools in Atmakur village, Mangalagiri, Guntur district, India. A questionnaire was given to the parents. Z test is used to categorize the students. 607 students were enrolled for this study and correlation is used to get the r value.

Results: Of all children taken for the study of prevalence of malnutrition, 607 children of either gender were included. Out of 607 children (54.36%) are male and (45.63%) are female students. Out of which 26.52% are at 3-4 years, 27.18% children are at 4-5 years, 10.21% children are at 5-6 years,25.04% are at 6-7 years, 11.03% children are at 7-8 years of age.

Conclusion: Malnutrition has a significant negative impact on a child's physical and mental development. In India, malnutrition is the primary cause of death among children. Early diagnosis of acute malnutrition with MUAC tape can be beneficial in children aged 6-59 months, although MUAC could only identify a small number of children as undernourished when compared to the W/H index.

Introduction:-

Malnutrition is a nutritional condition that is characterized by a deficiency, accumulation or disproportion of calories, proteins, as well as other micronutrients, which can have measurable detrimental effects in which the tissue as well as organ structure, metabolism, and patient outcomes are all altered.[1,2,3] One of the biggest causes of death among children under the age of five is malnutrition. Undernutrition is the leading cause of child mortality in developing countries. [4,5]. In 2016, an estimated 151 million children under the age of five were stunted globally.[6] In India, the prevalence of undernutrition among under five children according to the National Family Health Survey 4 (NFHS 4), 35.7 % of children as young of five showed underweight, 38.4 % showed stunting, and 21% had been wasted[7]. As per the Comprehensive National Nutrition Survey (2016–2018), 35% of Indian children between the ages 0–4 years are stunted, 17% are wasting, and 33% are underweight. [8]. Malnutrition is mostly caused by

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poverty, lack of social support, and drug abuse in industrialised countries. Reduced dietary intake, impaired macro- and/or micronutrient absorption, higher losses or adjusted needs, and greater energy expenditure are among the others.[9]. Malnutrition is of 3 types: Malnutrition includes wastage (reduced weight for height), stunted (low height for age), and underweight (low weight-for-age). Micronutrient deficiency (a lack of critical vitamins and minerals) or micronutrient overabundance induce malnutrition. Diet is connected to obesity, overweight, and noncommunicablediseases. Undernutrition can be subdivided into 4 forms: 1. A low weight-to-height ratio is termed as wasting. It implies that a person's excessive weight loss is caused by low of food and/or an infectious illness, such as dysentery. 2. A low height-to-age ratio is referred to as stunting. Chronic or recurrent malnutrition is the reason. Poor socioeconomic circumstances, poor maternal nutrition and health, recurrent infection, and/or insufficient infant and new-born infant nourishment as well as nursing mostly in early stages of life could all be factors that contribute.3. The low weight-for-age ratio is termed as underweight.A child who is underweight may be dwarfed, wasting, or sometimes both. [10].

Assesment Of Malnutrition:

The body mass index (BMI) has long been used in anthropometric measurement to monitor dietary health. [11]. BMI is calculated by dividing weight in kilograms by height in meters squared.

FORMULA: Weight (kg) / [height (m)] BMI can be used to analyse skin fold thickness measurements, dietary evaluations, physical activity evaluations, and family history.[12].A tool used to assess malnutrition is the mid-upper arm circumference (MUAC). The MUAC method of evaluating nutritional status is direct and affordable.In impoverished nations, MUAC is employed for rapid and widespread nutrition surveillance and screening programs. [13,14]. MUAC is a test that can be performed to evaluate whether a patient is malnourished. [15]. A plastic measuring tape was used to record MUAC.The MUAC refers to the diameter of the upper right arm assessed midway between both the tip of the shoulder as well as the apex of the elbows (olecranon process and the acromion).[16]

Pigment	Nutrition condition	MUAC (cm)	MUAC (mm)
Red	Severe	<11.5cm	<115 mm
Yellow	Moderate	11.5-12.4 cm	115-124 mm
Green	Healthy	>12.5 cm	>125 mm

BMI	Status
Less than 18.5	Underweight
18.5 – 24.9	Healthy Weight
25.0 – 29.9	Overweight
30.0and above	Obese

Materials And Method:-

Between September 2021 and April 2022, a prospective cross-sectional observational study is conducted among 607 students in primary schools and anganwadi centres at Nirmala institutions and government schools in Athmakur, Guntur district, India. The nutritional status of children was assessed using a questionnaire. Children between the ages of 2 and 8 who are present on the day of data collection are included in the study. Children below the age group of two and those over the age of eight were omitted and also those who were unavailable or refused to participate.A pre-designed, validated, and self-administered questionnaire was used to collect data. It includes information such as age, weight, height, BMI, and MUAC. The data is analysed using Microsoft Excel. The Z test is performed to categorise the students, and a correlation between the various factors was established. The correlation is established.

Results:-

Out of 607 responses the following results were established in different categories-

Age:

Out of the 607 responses, the children who are having malnutrition were found to be as follows 161 (26.36%) from 3-4 years of age, 165 (27.18%) of them were from 4-5 years of age, and 62 (10.21%) of them were from 5-6 years of age, 152(25.04%) were from 6-7 years and 67(11.03%) of the students were from 7-8 years of age group.

Gender:

There were 277 (45.63%) females and 330 (54.36%) males among the 607 responses obtained from questionnaire forms who are suffering from malnutrition.

Class:
Of the 607 responses, 83 (13.6%) were studying nursery, 143(23.5%) were LKG, 161 (26.5%) were UKG, and 220 (36.2%) were studying in class I were suffering from malnutrition.

Height:
Of all 607 responses, the children who had a height of 60-70 cms were found to be 4 (0.66%), 70-80 cms were found to be7 (1.15%), 80-90 cms were found to be14 (2.31%),90-100 cms were found to be 77 (12.6%), 100-110 cms were found to be 180 (29.65%), 110-120 cms were found to be 223 (36.74%), 120-130 cms were found to be 94 (15.49%), and 130-140 cms were found to be 8(1.32%).

Weight:
Children weighing 5–10 kgs were found to weigh 5 (0.82 %), 10-15 kgs were found to weigh 150 (24.71 %), 15-20 kgs were found to weigh 291 (47.94 %), 20–25 kgs were found to weigh 108 (17.79 %), 25–30 kgs were found to weigh 42 (6.91 %), 30-35 kgs were found to weigh 8 (1.32%), 35-40 kgs were found to weigh 1 (0.164 %), 40–45 kgs were found to (0.164%).

BMI:
Children with BMIs of 10-15 were found to be 423 (69.69%) of all 607 responses recorded, those with BMIs of 15-20 were found to be 168 (27.68%), those with BMIs of 20-25 were found to be 15 (2.47%) and those with 25- 30 were found to be 1(0.16%).

Muac Measurment:
Of the 607 responses received, the children who had MUAC measurements of 0–11 cms were found to be 2(0.33%), 11–12.5 cms were found to be 26 (4.28%), 12.5–13.5 cms were found to be 68 (11.37%), and > 13.5 cms were found to be 510 (84.02%).

Discussion:-

From September 2021 to April 2022, the current study was conducted in primary schools and anganwadi centres for around 8 months. This study included 607 pupils, and the z score was used to categorise them into four different categories of malnutrition. Malnutrition is more common in young children because of poor food and inadequate parental understanding. Malnutrition-related mortality could be reduced with a healthier lifestyle. The use of this study is that it can offer information on the nutritional needs of children.

In our research, we discovered that underweight is the most common condition among people of various ages. Males are more likely to stunt, whereas females are more likely to be underweight.According to the findings, stunting is prevalent throughout several classes. Stunting and obesity were reported in various height groups. There is wasting among the different weight categories. There is a wasting condition found among various BMI of children.

The results of the current study must be interpreted in light of its limitations. To start with, the ongoing study ignored the impact of health condition or potential morbidity/mortality problems (apart from birth weight).Moreover, since MUAC ignores body fat percentage, it may be limited in its ability to detect overweight in children with poor skeletal muscle mass. MUAC has been utilised in extreme situations, like as refugee camps or environmental disasters, where nutritional issues are more widespread; however, MUAC can also be used in more steady conditions to detect deficiencies that may occur (for example, in the context of abuse or neglect).As just a conclusion, rather than focusing on at-risk individuals, our results are accessible to the entire population. Secondly, this research sample was drawn from a specific area was not particularly reflective of the District, regardless of the fact that the subjects have been chosen randomly in each schools. Nevertheless, the results of this study were useful in the absence of worldwide agreement on the proper MUAC criteria for undernutrition aged 2 to 8 years.

When we established a correlation between the parameters in our study, we discovered that all the parameters have a positive correlation. Gender has a strong correlation of (+1), height, BMI, and MUAC have a moderate correlation (+0.86, +0.79, +0.72), while age and class have a weak correlation (+0.54, +0.22). We can conclude from this that malnutrition is significantly linked to gender, somewhat linked to height, BMI, and MUAC, and poorly linked to age and social status.

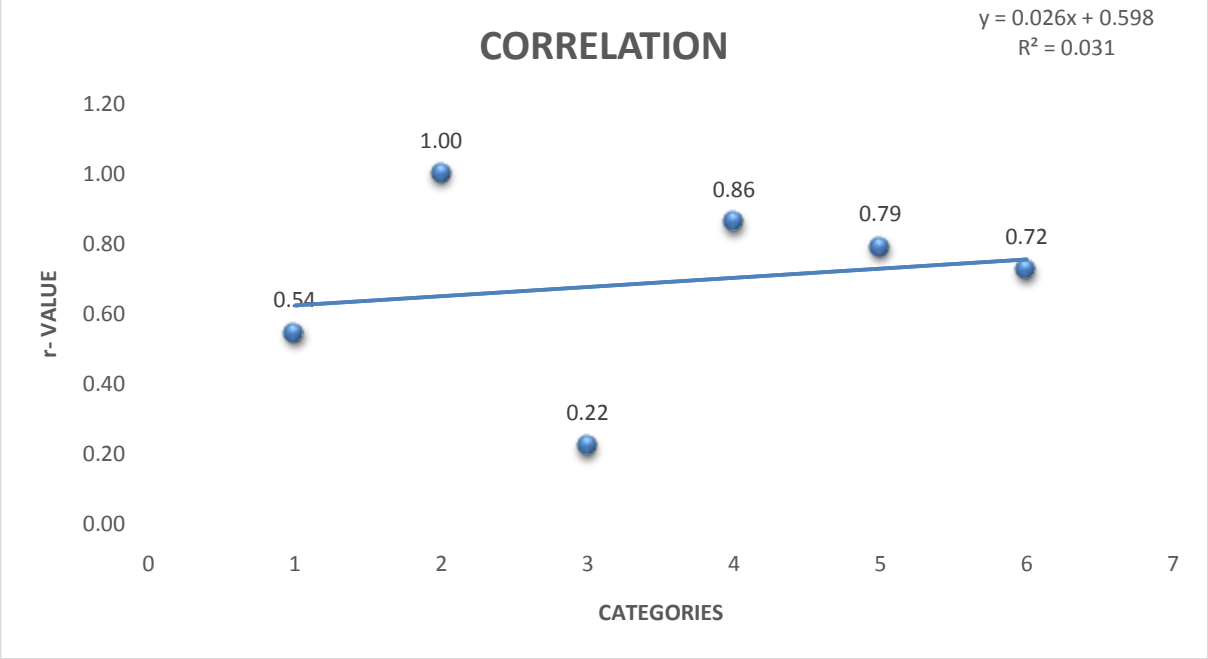
Conclusion:-

Acute malnutrition is characterised by fast weight loss and skeletal wasting and is caused by a lack of nourishment. Malnutrition has a profound effect on a children's healthy development.In India, malnutrition is the leading cause of death among children. Although MUAC could only identify a small number of children as undernourished when compared to the W/H index, early identification of acute malnutrition with MUAC tape can be advantageous in children aged 6-59 months. The results demonstrate that MUAC is a strong predictor of malnutrition in school children, and that MUAC cut-off values for malnutrition differ depending on the age and low birth. Growth monitoring using the MUAC is easy to administer and should be done on a frequent basis to examine nutritional status in school children.

Table No 1:-

CATEGORY	r VALUE
AGE	0.54
GENDER	1.00
CLASS	0.22
HEIGHT	0.86
BMI	0.79
MUAC	0.72

Fig No 1:-



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