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A STUDY TO EVALUATE THE INCIDENCE OF MALNUTRITION AMONG PRE-SCHOOLER AND SCHOOL GOING CHILDREN AND TO CREATE AWARENESS ON IMPORTANCE OF BALANCED DIET

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ABSTRACT
Malnutrition, with its 2 constituents of protein – energy malnutrition and micronutrient deficiencies, continues to be a major health burden in developing countries. It is globally the most important risk factor for illness and deaths, with hundreds of millions of young children particularly affected. It also weakness the immune system and causes significant growth and cognitive delay. Malnutrition is more due to poverty lack of knowledge and awareness about proper nutrition, lack of nutritious food, inadequate food and improper infant and child feeding. Nutrition during the childhood years has an impact not only on growth and morbidity during childhood, but also acts as a determinant of nutritional status in adolescent and adult life. The present study was conducted with objective to study the protein energy malnutrition (PEM) in children (4-9years) in various public primary schools of Hyderabad city of Telangana state. The study is carried out by asking close end-end question's with the parents of children, they were called and a brief health status, of their children was accounted depending upon the health status, family background, financial status of the family, dietary habits of the child, a data established in which 100 samples were collected out of which (50) were the female (50) male. The conclusion made out of the study frame, among 100 sample (29%) is with grade II malnourishment (35%) was with grade III and (20%) with grade I malnourishment, and only (16%) were normal. The estimated incident of malnourishment is more among the female when compared to the males, this may be due to lack of

awareness, concentration towards females child less then compare to males, apart from this it may be due to unsanitary environment, low birth weight, insufficient breast feeding, infections etc. The awareness is created among the parents regarding the symptoms, causes grades, of PEM, by conducting seminar. A broacher consisting of food list (i.e.) which helps in combating malnutrition is distributed.
KEYWORDS: Malnutrition, micronutrient deficiencies, morbidity, unsanitary environment, infections, Poverty, low birth weight, female child, cognitive delay.

INTRODUCTION

Malnutrition is a condition where there is an unbalanced diet in which some nutrients are in excess, lacking or wrong proportion. Simply put, we can categorise it to be under-nutrition and over nutrition despite India's 50% increase in GDP since 1991,[1] more than one third of the world's malnourished children live in India. Among these, half of them under 3 are underweight and a third of wealthiest children are over-nutriented.[2] The World Bank estimates that India is one of the highest ranking countries in the world for the number of children suffering from malnutrition. The prevalence of underweight children in India is highest in the world, and is nearly double that of sub Saharan Africa with dire consequences for mobility, mortality, productivity and economic growth.[3] The 2015 global hunger index (GHI) report ranked India 20th amongst leading countries with a serious hunger situation amongst south Asian nations it ranks third behind only Afghanistan and Pakistan with a GHI score of 29.0 ("serious situation"). [4] India is one of the fastest growing countries in terms of population and economics sitting at a population of 1.2billon and growing at 1.5% - 1.7% annually (from 2001-2007).[5][6] India's gross domestic product growth was 9.0% from 2007 to 2008, since independence in 1947, its economic status has been classified as alow-income country with majority of the population at or below the poverty line.[7] Though most of the population is still living below the national poverty line, its economic growth indicates new opportunities and a movement towards increase in the prevalence of chronic diseases which is observed in at high rates in developed countries such as united states, Canada and Australia. The combination of people living in poverty and the recent economic growth of India has led to the co-emergence of two type's malnutrition: under nutrition and over nutrition.[8]

Some of the major causes for malnutrition in India is economic inequality. It may be due to the low social status of some population groups, their diet often lacks in both quality and quantity. Women those who suffer from malnutrition are less likely to have healthy babies. The Indian mothers generally lack proper knowledge in feeding children consequently, new born infants are unable to get adequate amount of nutrition from their mothers. Deficiencies of nutrition result in long-term damage to both individuals and society. When compared with their better-fed peers, nutrition deficient individuals are more likely to have infectious diseases such as pneumonia and tuberculosis, which lead to a higher mortality rate in addition, nutrition – deficient individuals are less productive at work. Low productivity not only gives them low pay that traps them in a vicious circle of under nutrition , [9] but also brings inefficiency to the society, especially in India where labours is a major input factor for economic production.[10] On the other hand, over-nutrition also has severe consequences. In India national obesity rates in 2010 were 14% for women and 18% for men with some urban areas having rates as high as 40%. [11] obesity causes several non communicable diseases such as cardiovascular diseases.[9] On the global hunger index India is on place 67 among the 80 nations having the worst hunger situation which is worse than nations such as north Korea or Sudan 25% of all hungry people worldwide live in India since 1990 there has been some improvement for children but theproportion of hungry in the population has increased. In India 44% of children under the age of 5 are underweight 72% of infants and 52% of married women have anaemia. Research has conclusively show that malnutrition during pregnancy causes the child to have increased risk ofFeature diseases physical retardation, and reduced cognitive abilities.[12] The main causes are unsafe water inadequate sanitation or insufficient hygiene factors related to society and poverty, disease maternal factors, gender issues and – overall- poverty Malnutrition**,** physical

condition resulting either from a faulty or inadequate diet (i.e., a diet that does not supply normal quantities of all nutrients) or from a physical inability to absorb or metabolize nutrients, owing to disease.

CLASSIFICATION AND DEFINITION:

Protein energy malnutrition occurs when inadequate protein and / or calories are integrated in meet an individual nutritional requirement. PEM may be primary, as a result of inadequate food intake or secondary as a result of illness. The term protein energy malnutrition covers a wide spectrum of clinical stages ranging from the severe forms like kwashiorkor and masrasmus to the milder forms in which the main detectable manifaction is growth retrardation. Protein energy malnutrition is due to food gap between the intake and requirement. The average energy deficit in Indian Children is 300kcal/day.

The term kwashiorkor was first introduced by Cicely Willams in1935.This is a local name used by the Ga tribe in Accura, West Africa and means disease of the displaced child.

The Indian Academy of Pediatrics recommended diagnostic criteria (2007) adapted from the earlier WHO guidelines are weight for height/length below 70 per cent or <3 SD of NCHS median and/or visible severe wasting and/ or bipedal oedema; and upper are circumference,<115mm,criteriamay also be used for identifying severe wasting. Malnutrition can be in the form of (weight/Age) , stunting or (Height/Age) wasting (weight?Height).

Classification of PEM

• PEM is a spectrum of conditions ranging from growth failure to overt marasmus or kwashiorkor.

• Various classifications are given

Gomez classification¬

IAP classification¬

NCHS (WHO) classification¬

Waterlow's classification¬

The five forms of PEM are as follows :

i. Kwashiorkor

The important Clinical signs and symptoms of kwashiorkor are:

Growth failure due to general lack of proteins and calories, Mental changes such as apathy and irritability, Muscle wasting, Oedema occurs at first in the feet and lower leg and then may involve the hands, thigh and face. Moon face, Fatty and enlarged liver Loss of appetite, vomiting and diarrhoea. Changes in skin which include dark pigmented brownish black areas of skin on buttocks and back of thighs called as crazy pavement dermatosis. Hair changes, Anaemia ,Vitamin A deficiency.

ii. Marasmus

The signs and symptoms of marasmus are:

1. severe growth retardation
2. loss of subcutaneous fat
3. severe muscle wasting

The child looks appallingly thin with shrivelled body, wrinkled skin and bony prominence.

iii. Marasmic Kwashiorkar

The child shows a mixture of some of the features of marasmus and kwashiorkar.

iv. Nutritional Dwarfing or Stunting

Some children adapt to prolonged insufficiency of food-energy and protein by a marked retardation of growth. Both Weight and height are reduced and in the same proportion, so they appear superficially normal.

v. Under Weight Child

Children with sub-clinical PEM can be detected by their weight for age or weight for height, which are significantly below normal. They may have reduced plasma albumin. They are at risk for respiratory and gastric infections

Causes and symptoms:

Secondary PEM symptoms range from mild to severe, and can alter the form or function of almost every organ in the body. The type and intensity of symptoms depend on the patient's prior nutritional status, the nature of the underlying disease, and the speed at which the PEM is progressing. Severe , Mild and Moderate classifications for PEM have not been precisely defined, but patients who lose 10–20 percent of their body weight without trying may have moderate PEM. Some of the cause is replacement dependent (i.e. patients do not take in adequate protein during recovery from illness). This level of PEM is characterized by a weakened grip and inability to perform high-energy tasks. Loss of 20 percent of body weight or more is generally classified as severe PEM. Children with this condition cannot eat normal-sized meals. They will have slow heart rates and low blood pressure and body temperatures. Other symptoms of severe PEM include baggy, wrinkled skin; constipation ; dry, thin, or brittle hair; lethargy; pressure sores, and other skin lesions. Children who suffers from kwashiorkor often have extremely thin arms and legs, but liver enlargement and ascites (abnormal accumulation of fluid) can distend the abdomen and disguise weight loss. Hair may turn red or yellow. Anemia, diarrhea, and fluid and electrolyte disorders are common. The body's immune system is often weakened, behavioral development is slow, and mental retardation may occur. Children may have growth to normal height but are abnormally thin. Kwashiorkor , PEM usually develops in children who have been severely burned, suffered trauma, or had sepsis (massive tissue-destroying infection) or another life-threatening illness. The condition's onset is so sudden that body fat and muscle mass of normal-weight people may not change. Some patients can even gain weight because of fluid retention. Weakness is seen in severe marasmus. Since the body breaks down its own tissue to use for energy, children with this condition lose all their body fat and muscle strength, and acquire a skeletal appearance most noticeable in the hands and in the temporal muscle in front of and above each ear. Children with marasmus are small for their age. Since their immune systems are weakened, they suffer from frequent infections. Other symptoms may include loss of appetite, diarrhea, skin that is dry and baggy, sparse hair that is dull brown or reddish yellow, mental retardation, behavioral retardation, low body temperature (hypothermia), and slow pulse and breathing rates. The absence of oedema (fluid retention) distinguishes marasmus-like secondary PEM, a gradual wasting process that begins with weight loss and progresses to mild, moderate, or severe malnutrition (cachexia). It is usually associated with cancer, chronic obstructive pulmonary disease (COPD), or another chronic disease that progresses very slowly.

OBJECTIVES:

- To assess the nutrition status and associated risk factors of children in selected public primary schools
- To identify the causes of the nutritional problems in the children
- To improve nutritional status and living conditions of children
- To evaluate frequency/degree of malnutrition among children into grade l , ll, lll
- To collect the data (by questioner method)
- To subject the data to statically analysis.
- To evaluate the more sex ratio (i.e. significant difference) among the taken sample.
- To educate parents about the dangers of an unbalanced diet.
- To create awareness among parents about the importance of nutrition during growth.
- To suggest various preventive measures to combat problem of malnutrition.
- To encourage them to consume locally available low cost nutritious Foods.
- To know people's awareness about basic hygiene regarding children health.

METHODOLOGY:

Methodology of the present study is discussed under the following heads

- Research design
- Selection of sample
- Size of the sample
- Data collection
- Data Analysis

Research Design:

- Chota bazaar, Golconda, Moti Darwaza was selected as the area of the study.
- Random sampling was done.
- Size of the sample was 100 in number
- 16 were vegetarians
- 84 were non vegetarians
- Data collection was done through a questionnaire as a tool
- After data collection, the data was analyzed.
- Awareness is created among the parents by giving them the necessary information about the PEM, counseling them about the healthy diet to be taken.
- The people who were subjected to the awareness were the parents of the suffering childrens.

Selection Of The Area:

- Sample was selected from various public primary schools and some households in chota bazar , Golconda and Moti Darwaza areas.

Selection Of The Sample:

- Pre – Schoolers and school going children were selected randomly.

Size Of The Sample:

Through the random sampling 100 subjects were selected for the survey. The sample included the children of around (4 – 9 yrs) belonged to different places with different backgrounds.

Data Collection:

Tools and Techniques:

The information required for the study was collected using an questionnaire method. The questionnaire used to collect the information was developed in English. The objectives of the study was kept in mind while constructing the questionnaire. It consisted of only close ended questions with multiple choices. The content of questionnaire were divided into two headings.

Information Collection:

The information required for the study was collected using a questionnaire used to collect the information was developed in English. The objective of the study was kept in mind while constructing the questionnaire. It consisted of only close ended questions with multiple choices. The content of questionnaires were divided into two headings.

General Information:

The general information was collected to get the following details like personal information of the respondent viz age, gender, educational qualifications of the parents, sources of income, economic status and contact number.

Awareness Information:

It include question of close ended type. The questions was regarding the health status of their children, intake of protein and energy giving food during developmental stages and growth age and do they are aware of protein energy malnutrition, daily recommendation of energy and protein, functions of protein, symptoms of PEM, occurs due to type of diet which they consume, the measures that can be taken to overcome PEM etc.

Purpose and details of study:

The study was carried out to estimate the incident of PEM among the pre – schooler and school going children. The study was conducted in various public primary schools of chota bazaar, moti drwaza, Golconda, Hyderabad. The participants were parents as well as the teachers of the schools. All the childrens i.e. 4-9yrs of age studying in the public primary schools were invited to participate in the study. The study was carried out after obtaining informed consent of the students and their parents. A pre- tested and pre- designed questionnaire was used to collect the information on socio – demographic characteristic like age , sex, educational status , family size , and monthly family income , relevant medical history like weakness , fatigue history of worm infestation , and dietary history.

Materials and method:

Sources of data:

The mother of under nine children from selected public primary schools , Hyderabad.

Tools of data collection:

- Structured close ended questionnaire will be used for the data collection.
- Structured teaching program on protein energy malnutrition.

Data analysis method:

Appropriate descriptive and inferential statistic will be used for data analysis and presented in the form of tables , graphs and figures etc.

Research design and approach :

Quasi experimental design within one group pre and post test without group will be used for the study .

Setting:

The setting for the study selected public primary schools of chota bazaar, Golconda, Moti Darwaza.

Population:

The population for the study will be the mothers of under nine children .

Sample Size:

Approximate sample size for proposed study will be around 100.

Sampling technique:

Purposive sampling technique will be used to select the samples for the study.

Sampling criteria:

- Inclusive criteria.
- Mothers of under 9 children
- Who are coming to selected public primary schools.
- Who are willing to participate in the study.
-

Procedure:

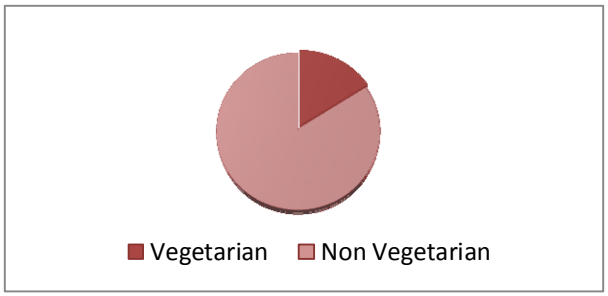
The study was conducted over various public primary schools of chota bazaar , Golconda, moti Darwaza in the Telangana district. Multi stage sampling procedure was adopted to select approximately one hundred children (4-9 Yrs) for the present study. The interview of the parents was taken to get the necessary information. A door to door survey was done and general information like name of the child , father name , age and sex of the child, type of family , parents occupation and educational status was collected from the head of each house hold. The grading of PEM was done as per the recommendation o f the nutrition sub committee of (I.C.M.R, 1972) A cross sectional study was under taken by house to house visit covering hundred children(4-9Yrs) from the public primary schools around the slum area. PEM is potentially fatal body depletion disorder. It is the leading cause of death in children and in developing countries. There are many nutritional problems which affects vast segments o our population. PEM is identified as a major nutritional problem in india. In occurs particularly in weakling and children in the five years of life. The current concept of protein energy malnutrition is that its clinical forms, the incidence of protein energy malnutrition in India in pre school age children age 1-2%. The great majority

of cases of PEM nearly 80% are the intermediate ones that is the mild and moderate cases usually go unrecognized. Nutritional Marasmus is more frequent when compared to kwashiorkor . The Kwashiorkar is a form of protein deficiency where as Marasmus is caused by energy deficiency, it is characterized by stunted growth and wasting of muscle and tissue. The level of under five malnutrition UNICEF given the source in 1995 – 2000 in south east Asia that the percent of under five malnutrition in India is 47% , Pakistan 35%, Bangladesh 48% , Bhutan 19 % , Nepal 47% , Afghanistan 48% and Srilanka 33%. The various nutrition program are in operation in India since the first five year plan period to combat some of the major nutritional prolems in the country. International agencies such as WHO, FAO, UNICEF and Care are assisting the government in the nutritional program of India in order to improve the nutrition of the people in India with special emphasis to mothers and children who are the vulnerable group in the society, the government of India has launched several nutritional programs to tackle the problem of malnutrition. These are supplementary feeding program , Balwadi nutritional program , Vitamin A prophylaxis and national goiter control program. The national institute of nutrition at Hyderabad is carrying out intensive and numerable field studies on different aspects of nutritionof children and women in India . further, investigator while conducting the study have inadequate knowledge regarding malnutrition. So the investigator will be planning to develop structured teaching program to improve the knowledge of the mothers of the children regarding malnutrition.in community the mothers of under five children attending public primary schools.

RESULT AND DISCUSSION:

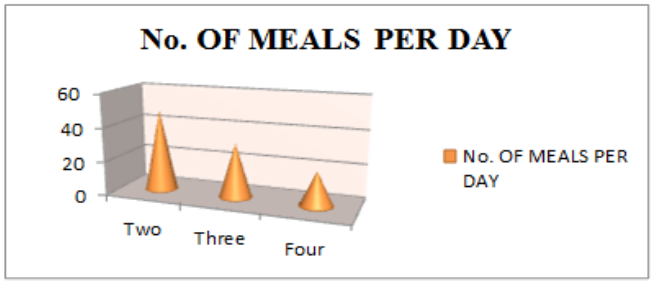
Protein energy malnutrition among children is a major public health concern worldwide. This is known by the fact that the prevalence of under – weight children in India is among the highest in the world. The PEM affects the child at the most crucial period of time of development, which can lead to permanent impairment in later life. So the mothers or care givers of the children should pay special attention towards nutrient need of the children. Thus, this can be eradicated by educating parents about the basic nutritional requirement of their children and encouraging them to consume a balanced diet (containing all the five food groups). The present study has been conducted on 100 Pre Schoolers and school going children under the age of 9 of Chota bazaar, Golconda. Moti Darwaza, from various public primary schools. The methodology used was oral questionnaire to know the awareness of parents regarding PEM symptoms and causes of PEM and about the basic hygiene regarding their children's health. Anthropometric measurement like height, weight and BMI were calculated. The information regarding their intake dietary pattern were collected and consolidated.

FIG-1: DIETARY CHOICES OF CHILDREN



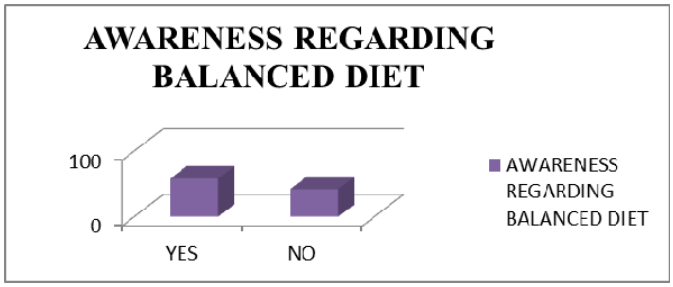
From the above figure it shows 16% of children choose vegetarian as their dietary choice and 84% of them choose non vegetarians.

FIG-2: NO. OF MEALS TAKEN BY CHILDREN



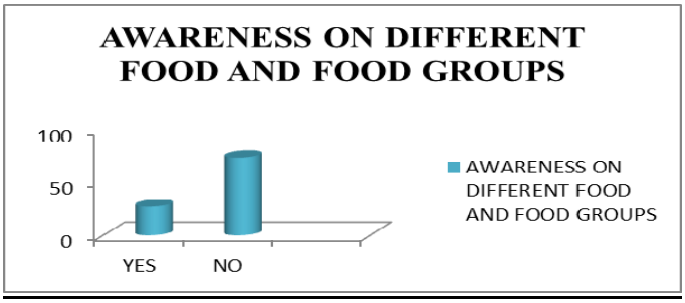
From the above figure it shows 48% of children choose to have Two meals per day, 32% of children choose to have Three meals per day and 20% of children choose to have Four meals per day.

FIG-3: AWARENESS REGARDING BALANCED DIET



From the above figure it shows 58% of people know and 42% does not know about the balanced diet.

FIG-4: AWARENESS ON DIFFERENT FOOD AND FOOD GROUPS

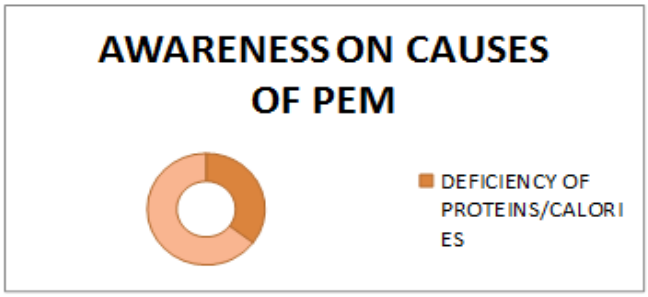


From the above figure it shows 27% of people know and 73% does not know about the different food groups.

FIG-5: AWARENESS ON PROTEIN ENERGY MALNUTRITION

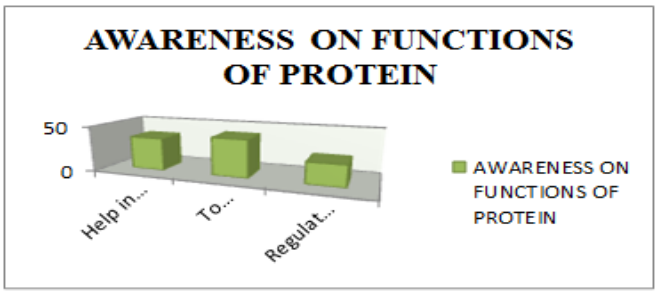
From the above figure it shows 17% of people know and 83% does not know about the protein energy malnutrition.

FIG-6: AWARENESS ON CAUSES OF PROTEIN ENERGY MALNUTRITION



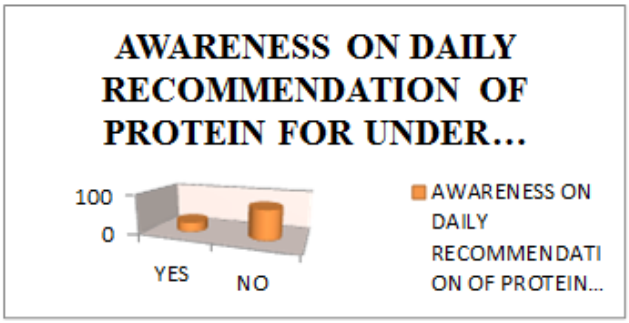
From the above figure it shows 34% of people know and 66% does not know about the causes of protein energy malnutrition.

FIG-7: AWARENESS ON FUNCTION OF PROTEINS



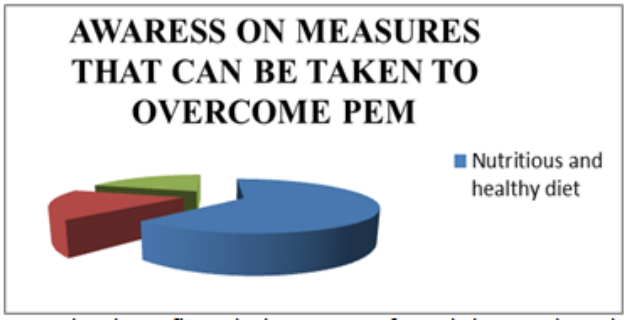
From the above figure it shows that 36% of people know the function i,e. helps in body building , 41% of people knows that protein helps in protection against infection and 23% of people knows about the protein regulating hormones.

FIG-8: AWARENESS ON DAILY RECOMMENDATION OF PROTEINS FOR UNDER WEIGHT CHILD



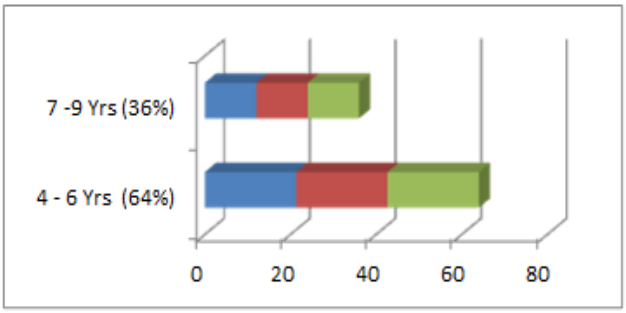
From the above figure it shows 25% of people know and 75% does not know about the daily protein recommendation.

FIG-9: AWARENESS ON MEASURES THAT CAN BE TAKEN TO OVERCOME PEM



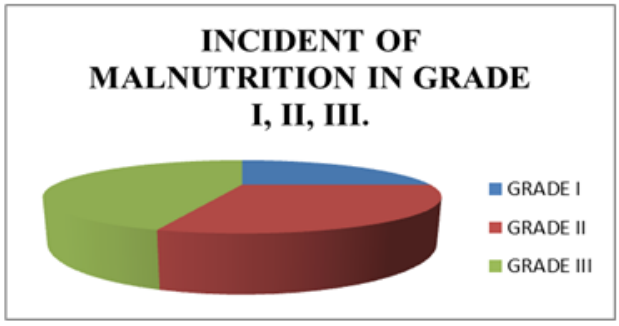
From the above figure it shows 62% of people knows about the nutritious and healthy diet, 18% people said skipping meals and 20% people said about eating junk foods helps to overcome PEM.

FIG-10: THE EVALUATED HIGHER RISK AGE GROUP



From the above figure it shows that 64% of children under 4 – 6 Yrs have high risk of PEM when compared to the rest 36% of children under 7- 9Yrs.

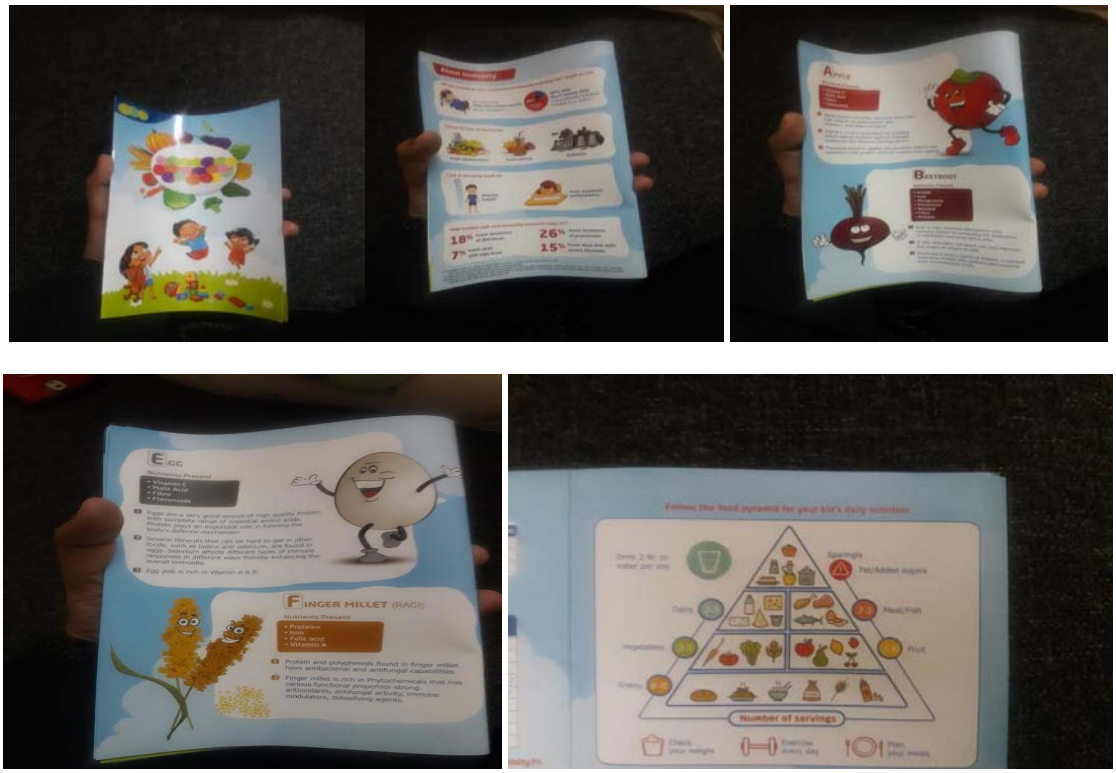
FIG-11: THE EVALUATED INCIDENT OF MALNUTRITION INTO GRADE I , II , III.



From the above figure it shows that the incidence of malnutrition with Grade III is more than Grade II which is more than Grade I.

FIG-12 (SURVEY AND SEMINAR):

FIG-13 CREATING AWARENESS REGARDING PEM THROUGH PAMPHLET:



CONCLUSION:

The present study is an attempt to access prevalence of protein energy malnutrition as well as the nutritional status of children to explore most probable risk factors influencing PEM , provides clear evidence of the poor state of nutrition among pre – schoolers and school going children. It quantifies the magnitude of childhood malnutrition can serve as a base line for accessing future patterns. The prevalence of malnutrition among young children is high , it is due to lack of awareness and knowledge regarding their food requirements and absence of a responsible adult caregiver. Most common causes of malnutrition include faulty infant feeding practices , impaired utilization of nutrients due to infections and parasites, inadequate food and health security , poor environmental condition and lack of proper child care practices. The present study was conducted with the objective to study the protein energy malnutrition in children (4-9 Yrs) in various public primary schools of Hyderabad city of Telangana State. The study is carried out by asking close end – end questions with the parents of children, they were called

and a brief health status of their children was accounted, depending upon the health status, family background, and financial status of the family, dietary habits of the child. A data is established in which total hundred samples were collected out of which (50) were the female and (50) were male, their height and weight measurements were taken based on that the body mass index (BMI) of the children were calculated to access their nutritional status. The conclusion made out of the study from ,among hundreds sample (20%) was with Grade III (35%) was with Grade II and (29%) was with Grade I malnourishment and only (16%) were normal. An increasing pattern was observed in the rate of all components of malnutrition by age that may be due to in appropriate nutritional habits. As indicated from this results , the rate of malnourishment in girls is higher than boys , suggesting more possible attentions to them.
Malnutrition among children can be eliminated by providing balanced nutritious diet to the children, early screening and management of malnutrition cases, creating awareness about the PEM problem and its prevention among the people. In addition, support and collaboration from all the sectors of community is essential.

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