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A Nutritional Surveillance at Coastal Mannar District;Using Body Mass Index

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Abstract

BMI is one of the tactic to analyze the nutritional status of human body by means of relating the body weight with height. That is human weight divided by their height squared. BMI has several categories. Generally, higher BMI root to higher risk. It is the best unit to know the healthy status of our body. The BMI level is categorized into several levels as: Underweight, Normal weight, Overweight, and obese. But it is not applicable for pregnant women and breast feeding mother. Study was considering the food habits how effects in BMI of the people in Mannar district. This would reflect the people in coastal area in Sri Lanka. Using data collected over 3 month from randomly selected 1392 participants in different areas in Mannar district. Data was collected about their height, weight, food habits, cooking methods, health status and economic status too. Thereafter discuss how these were involved in the BMI level and the health status. Approximately one-third (35%) of the population was normal weight, but 22 % of the population had severely underweight, 11% was underweight, 22% was overweight, and 10% was identified as obese. Underweight and overweight BMI need more consideration.

Keywords: Body Mass Index, Mannar, Nutritional Assessment, Obesity.

Introduction

Nutritional status of a human body can be analyses by using Body Mass index. Body mass index is describing the person's weight is appropriate to their height or not. That means, for the healthy status certain height person should poses the certain range of weight.
Following equation is used to calculate the BMI,

$$BMI = \frac{weight(kg)}{height(m^2)}$$

According to the BMI it was categorize as severely underweight, underweight, normal weight, overweight, obesity[1], obesity[2], and obesity[3] and BMI ranges are respectively less than 16kg/m^2, 16-18kg/m^2, 18-25kg/m^2, 25-30kg/m^2, 30-35kg/m^2, 35-40kg/m^2, greater than 40kg/m^2. Higher risk of mortality in seriously ill or hospitalized older adults can be possible when underweight and severely underweight category of BMI[1]. Conversely, overweight and obesity category of BMI can cause increased risk of many chronic health disease, diabetes, hypertension, and cardiovascular disease, type 2 diabetes, coronary heart diseases, stroke, gallbladder disease, sleep apnea and respiratory problems are common[2-4].

A number of favorable health outcomes in adults, weight gain also lowered with time and improved survival[5] results by consuming high nutritional foods such as cereals, fruits, vegetables, sea foods and low-fat meat and dairy products. In contrast, consuming high amount of sweets, desserts, and high-fat dairy products which are contain low nutritional foods have been increased risk of obesity and lower nutritional status of body condition in older adults[6]. This leads to considerable variation of health condition of a body. Thus, the objectives of this study were to find health status in a population of Mannar costal area in Sri Lanka and the associations between BMI and dietary habits.

Methodology

Data collection: This study is a primary data analysis; Data was collected by questioner survey. Details were collected about number of family members, age, height, weight, occupation, diseases, whether they are vegetarian or non-vegetarian, stable food and etc. this primary data was collected in Mannar coastal area in the north province of Sri Lanka. Data was collected randomly in 14 selected villages in the coastal area from January to April, 2015. Total sample size 1392 from 400 families.

Questionnaire survey was performed to collect the information regarding their profile, tobacco usage, nutritional supplement use, type and amount of food intake including dairy products which is nutritionally dense or not. Further details including stable food, rice is the stable food in the study area so weather they prefer red rice or white rice, what they take for dinner and breakfast, whether they consider about their protein intake. If they are vegetarian, what are the vegetables taken for protein need, how they focus on intake of fruit. Information about the

way of cooking is also obtained from this questioner for an example weather they cooked as boiling or gravy or baking. How much amount they put salt, oil, spicy and sugar during their cooking. Which oil they used to cook and whether the salt is contain iodine or not. How much amount of snacks they take and what are they prefer to take as snacks. Diseases whether hereditary or seems from this generation, what types of disease how their habits were included the questioner which interviewed from family members.

Calculated BMI from recorded height and weight was used to form BMI classifications[7]. Graphs, percentage of each category sample and distribution of sample was performed by using of MINITAB 15.

Results and Discussion

Approximately one-third (35%) of the population was normal weight, but 22 % of the population had severely underweight, 11% was underweight, 22% was overweight, and 10% was identified as obese.

According to the analysis BMI distribution with age category was given below Figure-1. It showed the relationship with daily activity, food habit (specially cooking method), quantity of meals intake and the medication they follow. Smoking and alcohol consumption habits were commonly found among overweight and obese population.

Under the age of 18 are regarded as children according to the 1979 Convention on the Rights of the Child[8], those severely underweight BMI category were mostly found in children. Distribution of BMI among children were described in following Figure-2.

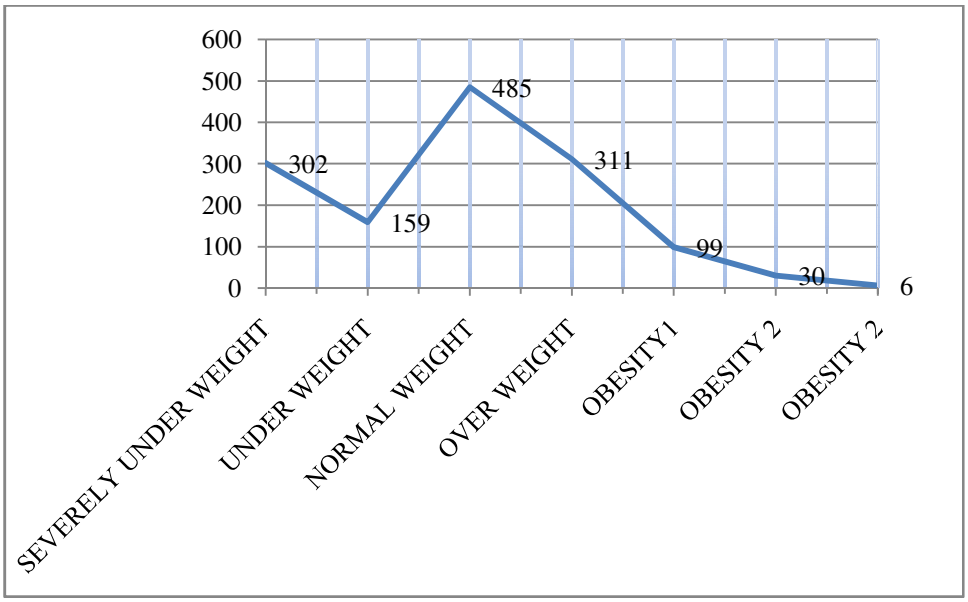

Figure-1
BMI distribution

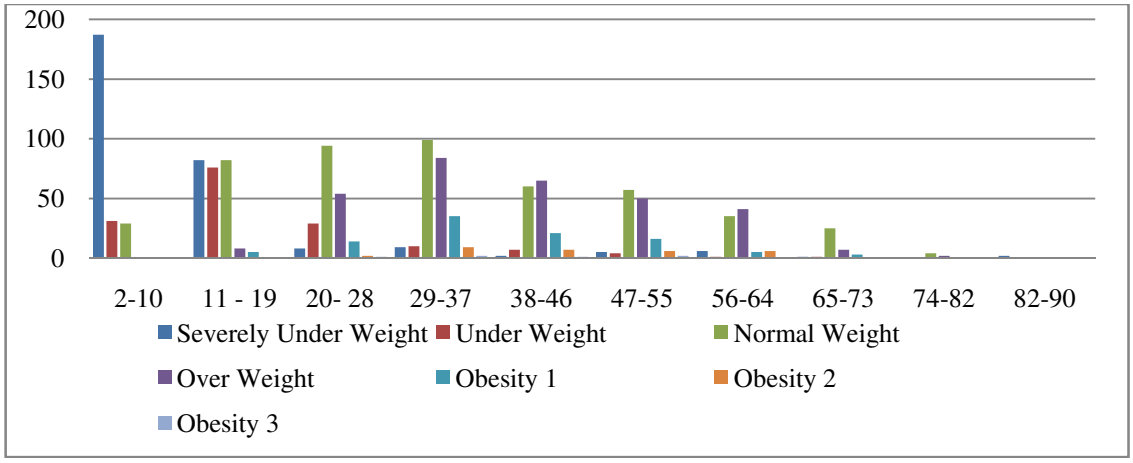

Figure-2
BMI distribution with age

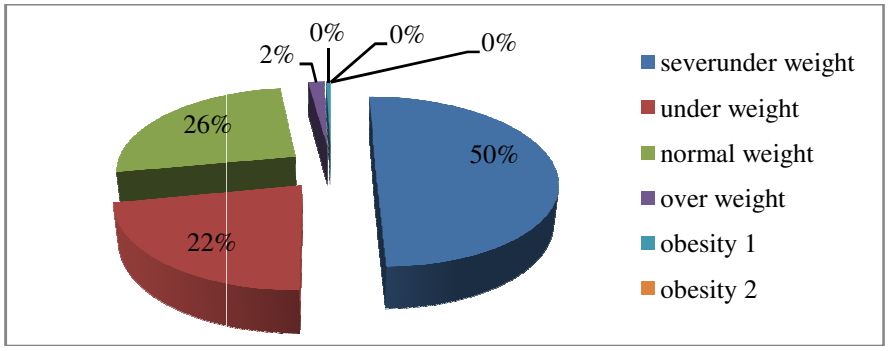

Figure-3
BMI Distribution within children

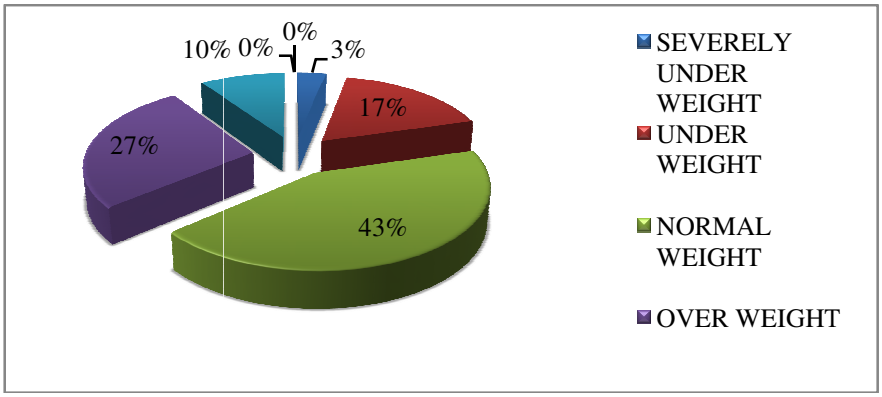

Figure-4
BMI distribution within youths

It shows that 50% of children in the coastal area under the severely underweight and 22% of children were under weight. It reflects the poor health status of children in the coastal area. This is because of their improper food intake, unbalanced food and strenuous physical activity. Many of their parents were poorly educated or uneducated and have low income.

Youth defines as persons between the ages of 18 and 24[8]. Distribution of BMI among youth is given in the following Figure-4. It shows healthy status among youths. That is 43% of youth in normal weight. Over weight and obese was found in 20%. Most adults were found to be in healthy weight range perhaps due to higher awareness of personal care and coupled with their reasonably higher educational background received with the courtesy of the state government have experienced. Negligence in maintaining of a sound health status due to the commitment of married life may cause to downgrade above status due to work stress, family responsibility, and other personal problems are factors to be concerned. The people who consume heavy doses of medication found to have ulcers. Ideal weight is necessary for everyone to achieve and maintain a good health, for that dietary guidelines suggests, to have a balance diet in time and spend at least 30 minutes for daily exercise which cause nutritional deficiencies and chronic diseases[9,10].

BMI distribution was varied with Substantial segment of the overweight women who were subjected for the examination had a preference to eat more fried foods, eating late and late night, especially consuming leftovers of dinner and sleeping soon after the meal. Sri Lanka is predominantly an agricultural country, so that rice is the staple food. It is the major source of carbohydrate. But protein intake was influenced by food preference either vegetarian/ non vegetarian. In Mannar coastal, many families are depending on fishing and also palmyra trees and coconut trees are dominant, so Palmyra food products are commonly consumed frequently by people living in that area. Due to its high fiber content in the Palmyra products none of the individuals were identified for constipation. Consuming poor nutritional foods found in underweight participants. Unhealthy diets was found in overweight/obese.

The educational status might be the factor which determines the nutritional intake[11,12]. Lower intake of high nutritional foods have increased the risk of being overweight[13-15]. One of the best strategies for weight loss and lowering energy consumption is increased intake of fruits and vegetables[15-17]. The Results revealed that the participants in the highest weight category (BMI >25) consuming lower Frequency of fruits and vegetables than their non-overweight/non-obese and also seemed to be having greater risk for high blood pressure, diabetes, and cardiovascular disease. Barriers of in taking fruit and vegetables in older adults have been identified as social isolation,

constipation, missing teeth, cost, preparation issues and poor self-reported[18,19,20].

Conclusion

Approximately one-third (35%) of the population was normal weight, but 22 % of the population had severely underweight, 11% was underweight, 22% was overweight, and 10% was identified as obese. This survey shows that the proper intake of fish, fruits and vegetable helps to maintain the ideal weight and that prevents from chronic diseases. Maternal malnutrition and over workload was found to have relationship with the low birth weight of infant. According to the findings, awareness should be created among peoples about existing scenario. The studies had identified all ranges of BMI. Here severely underweight and underweight children and adults need to gain weight. People who are at the margin of normal weight should prevent them from gaining further weight. Overweight and obese should reduce their calorie and should focus on a weight loss goal. Here both the patient and the practitioner should understand that long term effort is required to achieve a successful ideal weight.

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