



AN ASSESSMENT OF BODY MASS INDEX OF KAPALA COMMUNITY IN KODAGU DISTRICT, KARNATAKA

Nutritional Science

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ABSTRACT

A cross-sectional study was undertaken on the 120 Kapala community members belonging to the 15- to 85-year-old age group through purposive sampling methods. The research study was conducted to determine the prevalence of underweight and obesity. Most of the samples fall under the age group of 15 to 30 (40 samples with a percentage of 33.3), and 34 samples fall under the age group of 46 to 60 with a percentage of 28.3. It is found that many females have overweight conditions. There is a relationship between gender and BMI ($p = 0.93$), and there is a significant relationship between age groups and BMI ($p = 0.027$). The mean and standard deviation values for the height were $154.67 + 9.66$ m, while the mean weight was $49.83 + SD 12.139$ kg, and the mean BMI was $20.73 + SD 4.29$ kg/m². The study suggests that community members have to maintain a proper body weight in the range of a BMI of 18.5–25 by maintaining a proper diet and engaging in physical activities.

KEYWORDS

Kapala, Assessment, WHO, Body Mass Index

INTRODUCTION

Today, around the world, the burden of non-communicable diseases is increasing in human beings due to sedentary lifestyles, reduced dietary quality, and increased exposure to unhealthy environments. These changes have led to radical changes in the health status of human populations¹⁸. BMI is a metric used for defining anthropometric height and weight characteristics in adults and for classifying them into groups. It is an individual's fitness index¹³. Overweight and obesity have become one of the most significant public health challenges facing the contemporary global community and have reached epidemic proportions worldwide³. It is due to the sedentary lifestyles of human beings, which result in the excessive accumulation of fat in the human body. Associated with several chronic and debilitating diseases, including diabetes, hypertension, heart disease, and many cancers^{5,9}. Dramatic increases in the composition of obesity among adults, adolescents, and children over the past 30 years^{2,4,9}.

Across the world, as of 2014, more than 1.9 billion adults aged 18 and older were overweight, of whom 600 million were obese, with 39 percent of adults aged 18 and over being overweight and 13 percent being obese¹⁷. As per the WHO, over 1 billion (16 percent) adults are overweight, and 300 million of these five percent are obese globally¹¹. Globally, obesity has nearly tripled since 1975, and in 2016, more than 1.9 billion adults, aged 18 and older, were overweight. Of these, over 650 million were obese; 39 percent of adults aged 18 years and over were overweight; and 13% were obese. The mainstream population across the globe lives in nations where overweight and obesity kill more people than underweight¹⁷. Body Mass Index (Quetlet's Index), is extensively used to calculate fatness or the nutritional status of populations in both developing and developed nations^{1,10}. Generally, the BMI tool is used to correlate the risk of health problems with weight at the population level and is a good proxy for adiposity and overweight-related health complications. Keeping this in view, the present study aims to assess the body mass index and determine the occurrence of underweight and obesity among the Kapala community.

MATERIAL AND METHODS

A cross-sectional study was undertaken on the 120 Kapala samples among 157 samples (56 males and 64 females) belonging to the 15 to 85 years-old age group through purposive sampling methods. The research study is mainly based on both primary and secondary sources of information. Secondary data is utilised to know the previous research studies done on the body mass index of diversified human population groups worldwide. The required primary data for the study is collected from the field by conducting fieldwork in the hamlet of Kapala community in Yavakapadi village (Kakkabe) in the Kodagu district, Karnataka, and for this we have utilised anthropological methods like observation. Structured interview schedules are used for gathering information pertaining to gender, age, height, and weight.

The quantitative data is analysed by using the statistical tool SPSS 22 to calculate the frequency, percentage, mean, standard deviation, chi-

square, and cross-tabulation of the gender, height (in metres), and weight (in kilogram's). The BMI of the study samples is calculated with the help of a BMI formula [BMI = weight (kg)/height (m)²], and the BMI categories are taken from the cut-off values of the World Health Organisation (WHO) criteria [i.e., BMI < 18.5 kg/m² was described as underweight, 18.5–24.9 kg/m² as normal, 25–29.9 kg/m² as overweight, and 30 kg/m² as obese]¹⁷. Body weight and height were measured to the nearest 0.1 kg and 0.5 cm using standard calibrated scales and a non-stretch tape fixed to a flat vertical wall¹⁹.

RESULTS AND DISCUSSIONS

Table No-1: Gender Wise Distribution Of The Samples.

Gender	F	%
Male	56	46.7
Female	64	53.3
Total	120	100

The above table no 1 depicts the distribution of samples by gender. Among the 157 Kapala samples, a total of 120 were considered for study, of which 56 were males (46.7%) and 64 were females (53.3%).

Table No-2: Distribution Of Samples According To Age

BMI Categories	F	%
Underweight	42	35
Normal	58	48.3
Overweight	15	12.5
Obese	5	4.2
Total	120	100

Table no 2 depicts the age-wise distribution of samples. In this study, we have taken an age group of 15 to 85. Most of the samples fall under the age group of 15 to 30 (40 samples with a percentage of 33.3), and 34 samples fall under the age group of 46 to 60 with a percentage of 28.3.

Table No-3: BMI Categories Wise Distribution Of The Samples

Age	F	%
15-30	40	33.3
31-45	30	25
46-60	34	28.3
61 & above	16	13.3
Total	120	100

The above Table no 3 depicts the frequency and percentage-wise distribution of samples according to BMI categories. Among the 120 samples, 42 falls under the category of underweight (35%), and 58 fall under average weight (48.3%). Similarly, 15 samples fall under the category of overweight (12.5%), and 5 are obese (4.2%). A difference in body fat composition in both males and females is observed. Body fat composition differs among different ethnic groups^{12,7,1}. Factor that influences the variation of BMI, such as age, sex, body shape, and ethnicity^{12, 8, 16, 15, 1}. The prevalence of BMI is higher among Kapala females compared to males. The minimum and maximum BMI of the

samples are 12.9 and 34.9, respectively. Occurrence was higher in females (34.9%) compared to males [28.4%]¹¹.

Table No-4: Distribution Of Samples According To Gender And BMI Category

Gender	BMI Categories							
	Underweight		Normal		Overweight		Obese	
	f	%	f	%	f	%	f	%
Male	20	35.7	28	50	6	10.7	2	3.6
Female	22	34.4	30	46.9	9	14.1	3	4.7
Total	42	35	58	48.3	15	12.5	5	4.2

($\chi^2 = 0.43$, $df=3$, and $p = 0.93$)

The above Table No. 4 depicts the distribution of samples according to gender and BMI categories (weight categories based on the BMI). It is found that many Kapala females have overweight conditions. The body mass index is generally considered the best indicator of fatness and thickness^{14,6}. There is an insignificant relationship between gender and BMI ($p = 0.93$). Kapala males were less undernourished than females. Most of the females have a normal body mass index, similar to the earlier community studies²⁰.

Table No-5: Distribution Of The Samples According To Age And BMI Category

Age	BMI Categories							
	Underweight		Normal		Overweight		Obese	
	F	%	F	%	F	%	F	%
15-30	9	22.5	19	47.5	8	20	4	10
31-45	8	26.7	18	60	3	10	1	3.3
46-60	14	41.2	17	50	3	8.8	0	0
61 & above	11	68.8	4	25	1	6.2	0	0
Total	42	35	58	48.3	15	12.5	5	4.2

($\chi^2 = 18.84$, $df = 9$, and $p = 0.027$)

The above table no 5 depicts the distribution of samples according to age and BMI. There is a significant relationship between age groups and BMI as per the p value ($p = 0.027$). The Kapala community's mean BMI was found to be higher than that of the other Indian ethnic groups and communities: Gond (18.33 kg/m²), Korku (18.30 kg/m²), Mahadeokoli (18.17 kg/m²), and Oran (18.48Kg/m²)²¹. There were significant differences in BMI between the other communities. Due to lifestyle and environmental conditions exposed to modern facilities, stress factors are increasing and contributing directly to the obesity and overweight of women.

Table No-6: Distribution Samples According To Height And Weight Mean (average)

Parameters	Male (56)			Female (64)		
	Mini-mum	Maxi-mum	Average	Mini-mum	Maxi-mum	Average
Height (cm)	147	182	161.4	131	163	148.7
Weight (kg)	38	85	53.4	26	87	46.6

The above table no. 6 depicts the distribution of samples according to average. It was found that among the 56 male samples, the minimum height is 147 cm and the maximum height is 182 cm, with an average of 161.4 cm. Similarly, among the 64 female samples, it was observed that the minimum height is 131 cm and the maximum height is 163 cm. Overall, results found that males have more height as compared to females, and average height is also higher among males than females. Likewise, in terms of weight, it is observed that among the 56 male samples, the minimum weight is 38 kg and the maximum weight is 85 kg, with an average of 53.4 kg. Similarly, among the 64 female samples, it was observed that the minimum weight is 26 kg and the maximum weight is 87 kg, with an average weight of 46.6 kg, respectively. The statistical results show that females have more weight than males. But males have a higher average weight as compared to females.

CONCLUSIONS

The stress factor is a contributing factor to obesity and overweight. Due to their sedentary lifestyles, underweight, overweight, and obesity are becoming more common among young people. The young generation is particularly concerned about these issues. Proper maintenance of diet habits helps to maintain a healthy nutritional status of the Kapala community. The present study shows that, out of 120

samples, 35% of the subjects are underweight, 48.3% are normal weight, 12.5% are overweight, and 4.2% are obese. A healthy diet can protect our body from certain non-communicable diseases such as obesity, diabetes, cardiovascular disease, and cancer. Kapalas are non-vegetarians, and their dietary habits are largely supplemented by the locally available wild leafy green vegetables, fruits, rice, fish, crab, chicken, mutton, and pig meat. The intake of milk and dairy products is almost negligible. Nutritional factors play a significant role in the health conditions of the population. Sufficient nutrition is the fundamental right of every individual and is the core pillar for the overall growth. The dietary habits of its people influence the biological factors of the body. Height and weight correspond with age and gender and signify nutritional status. The present study sheds light on the BMI of the Kapala community in Karnataka. The results of the study found that females are in better condition for their weight and age.

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