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An exploratory study of prevalence of body composition among male employees of Kurukshetra University, Kurukshetra

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Abstract

The purpose of the study was to compare the body composition variables of Male employees of Kurukshetra University, Kurukshetra at different level of categories. Total 300 Male employees were recruited as a sample 100 each from teaching, non-teaching and class-D employees further 150 Male employees were selected randomly from three different categories (50 each from teaching, non-teaching and class-D Male employees). The data was obtained from Kurukshetra University, Kurukshetra. The body composition variables (Body mass index (BMI), Basal Metabolic rate (BMR), Skeletal Muscle %) of Male employees were measured with the help of bio electrical impedance machine. With regard to this purpose of the study statistical techniques of F-test, ANOVA and Post Hoc test was applied to find out mean differences. Level of significance was fixed at 0.05. The study revealed that selected Body composition variables that were Basal metabolic rate and skeletal muscle have significant differences among teaching, non-teaching and class-d employees of Kurukshetra University, Kurukshetra. But insignificant differences were found for Body mass index among all the three categories.

Keywords: prevalence of body, male employees, body mass index

Introduction

Living a healthier life can not only extend your life, it can also improve the quality. Feeling physically better and having control over your own life can greatly increase your mental health as well. Although there are some aspects of physical and mental health that are beyond an individual's (and science's) control, there are many things that people can do to improve their quality of life. The purpose of this study is to introduce you to some of the basic practices and guidelines of healthy living. Because every person (and his or her physical health and abilities) is unique. It is important to check with your doctor or medical care provider when changing your lifestyle. However, the information from this study may provide you with some basic guidelines for developing your own healthy living plan.

Physical fitness is a term, which has different meaning for different people. For a simple man to have a good physique is a symbol of physical fitness. For a doctor proper functioning of various important systems of our body is physical fitness. Actually physical fitness of an individual may be explained as the capacity to do the routine activities without getting undue fatigue, to meet emergencies, to face stress situations and still have more energy to do some more work with better recovery process. (Deol N.S. and Kang G.S. 2010) ^[3]

Nkwoka I.J *et al.* (2014) ^[11] studied the prevalence of obesity is increasing worldwide. Affluence is a sure key factor in the development of obesity as portrayed by increased urbanization and industrialization that has been associated with increased prevalence of obesity. The study demonstrated a moderately high prevalence of obesity among staff of Usmanu Danfodiyo University Sokoto with poor knowledge of the subject but a good attitude towards it. The study also demonstrated a statistically significant relationship between obesity and some socio demographic factors like, type of staff and cadre of staff. Chukwuonye II *et al.* (2013) ^[1] studied and concluded that the prevalence of overweight and obese individuals in Nigeria is of epidemic proportions. There is a need to pay closer attention to combating these health disorders. The study carried out by Jaspreet Kaur and Promila Mehta (2012) ^[5] assessed the prevalence of overweight and underweight amongst girls of age group 10 to 16 years

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studying in private (high income group) and government (low income group) schools of Ludhiana (Punjab) during mid-2007. A positive correlation of parental BMI was found on BMI of children suggesting that overweight parents are likely to have overweight children. This study finds that there is a double burden of underweight and overweight in this population. K.O. Hajian-Tilaki *et al.* (2011) [7] assessed the prevalence of overweight/obesity and associated factors in urban school children in Babol in a cross sectional study of 1000 school children aged 7-12 years. The prevalence was significantly lower in girls compared with boys (age-adjusted OR = 0.69, 95% CI: 0.50-0.96) and higher among private-school educated children compared with public-school educated students (age adjusted OR = 2.17, 95% CI: 1.47-3.18). For each additional score of leisure time physical activity, the age-adjusted or decreased significantly. Cynthia L *et al.* (2006) [2] studied the prevalence of obesity and overweight among US population. The results of this study show that obesity continues to be a leading public health concern in the United States. Between 1980 and 2002, obesity prevalence doubled in adult's aged 20 years or older and overweight prevalence tripled in children and adolescents aged 6 to 19 years. This article provides the most recent prevalence estimates of overweight and obesity based on national measurements of weight and height in 2003-2004 and compares these estimates with estimates from 1999-2000 and 2001-2002 to determine if the trend is continuing.

Explanation of terms

Teaching Employees: These are the members of staff in a school, college, or university who all are associated with teaching.

Non-Teaching Employees: Employees within an academic or vocational environment whose jobs do not involve teaching. Their nature of duty is assisting in teaching as well as doing typing work and other official work of the institute.

Class D Employees: In this category the employee has to help the teaching and non-teaching employees of the institute their nature of job including cleaning, swiping, serving and other assisting type of activity.

Body mass index: Body mass index is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity. It is defined as the weight in kilograms divided by the square of the height in meters (kg/m^2). For eg. An adult weight 70 kg and height 1.75 m will have $\text{BMI} = 70 (\text{kg}) / 1.75^2 (\text{m}^2) = 22.9$.

Basal Metabolic Rate: Your resting Metabolic (BMR) is the amount of energy which our body needs maintain normal function while at rest.

Skeletal Muscle: A usually voluntary muscle made up of elongated, multinucleated, transversely striated muscle fibres, having principally bony attachments. Also called striated muscle.

Obesity: Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems.

Material and Methods

The purpose of the study was to compare the body composition variables of Male employees of Kurukshetra University, Kurukshetra at different level of categories. Total 300 Male employees were recruited as a sample 100 from teaching, 100 from non-teaching and 100 from class-D employees and 150 Male employees were selected from three different categories (50 teaching, 50 non-teaching and 50 class-D Male employees). The data was obtained from Kurukshetra University, Kurukshetra.

Variables and Criterion Measures

Body composition Variables: Body mass index (BMI), Basal Metabolic rate (BMR), Skeletal Muscle %. It was measured with the help of bio electrical impedance machine.

Statistical Consideration

For interpretation of the data statistical techniques of F-test, ANOVA and Post Hoc test was applied to find out mean differences.

Results

Different types of descriptive statistic such as mean and standard deviation was computed to describe each variable statistically. The level of significance was set at .05. Its results have been depicted in the following tables.

Table 1: (Body Mass Index) Mean, Standard Deviation and F Values of Selected Body Mass Index of Teaching, Non-Teaching and Class-D Male Employees.

Group	Mean	Standard Deviation	Anova F-Ratio
Teaching	26.00	4.21	1.05
Non-Teaching	57.53	214.98	
Class-D	26.11	25.39	

Level of Significance .05 DF = 49

Tabulated 'F' value 1.68

Table-1 gives the mean and standard deviation values with regard to teaching employees is 26.00 and 4.21 where as in the case of non-teaching employees is 57.53 and 214.98 and Class-D employees 26.11 and 25.39 respectively. The calculated F- value 1.057 which is less than the tabulated F- value 1.68 at .05 level. So, it shows that there is a non-significant difference among teaching, non-teaching and class-D employees for their body mass index variable.

Table 2: (Body Mass Index) Post Hoc 'T' Test Selected Body Mass Index % of Teaching, Non-Teaching and Class-D Male Employees.

Group	Teaching	Non-teaching	Class-D
Teaching	0	-1.130	-.1019
Non-Teaching		0	1.028
Class-D			0

Level of Significance .05 DF = 49

Tabulated 'F' value 1.68

Table 4.8 displays post hoc test (LSD) of body mass index. When the anova was applied the F value found insignificant at 0.05 level. When the post hoc, t-values were compared between groups for body mass index their exists insignificant difference between Teaching & Non-Teaching groups (1.130) and Teaching & Class-D (.101) and Non- Teaching & Class-D groups (1.02).

Table 3: (Basal Metabolic Rate) Mean, Standard Deviation and F Values of Selected Basal Metabolic Rate of Teaching, Non-Teaching and Class-D Male Employees.

Group	Mean	Standard Deviation	Anova F-ratio
Teaching	1353.46	149.40	5.79*
Non-Teaching	1376.33	249.17	
Class-D	1253.22	214.88	

Level of Significance .05 DF = 49
 Tabulated 'F' value 1.68

Table- 3 depicts the mean and standard deviation values with regard to teaching employees is 1353.46 and 149.40 where is in the case of non-teaching employees is 1376.33 and 249.17 and Class-D employees 1253.22 and 214.88 respectively. The calculated F- value 5.79 which is more than the tabulated F-value 1.68 at .05 level. So, it shows that there is a significant difference among teaching, non-teaching and class-D employees for their basal metabolic rate.

Table 4: (Basal Metabolic Rate) Post Hoc 'T' Test Selected Basal Metabolic Rate of Teaching, Non-Teaching and Class-D Male Employees.

Group	Teaching	Non-teaching	Class-D
Teaching	0	-52.38	108.66*
Non-Teaching		0	161.04*
Class-D			0

Level of Significance .05 DF = 49
 Tabulated 'F' value 1.68

Table 4 displays post hoc test (LSD) of Basal Metabolic Rate and results were found significant at .05 levels. When the post hoc, t-values were compared between groups for Basal Metabolic Rate their exists significant difference between teaching & class-D (108.66) and non- teaching & class-D (161.04) groups whereas insignificant difference between teaching & non-teaching (-52.38).

Table 5: (Skeletal Muscle %) Mean, Standard Deviation and F Values of Selected Skeletal Muscle % of Teaching, Non-Teaching and Class-D Male Employees.

Group	Mean	Standard Deviation	Anova F-ratio
Teaching	22.74	2.33	8.96*
Non-Teaching	22.88	2.21	
Class-D	24.39	1.88	

Level of Significance .05 DF = 49
 Tabulated 'F' value 1.68

Table 5 shows the mean and standard deviation values with regard to teaching employees is 22.74 and 2.33 where is in the case of non- teaching employees is 22.88 and 2.21 and Class-D employees 24.39 and 1.88 respectively. The calculated F-value 8.96 which is more than the tabulated F-value 1.68 at .05 level. So, it shows that there is a significant difference among teaching, non-teaching and class-D employees for their skeletal muscles.

Table 6: (Skeletal Muscle %) Post Hoc 'T' Test Selected Skeletal Muscle % Of Teaching, Non-Teaching And Class-D Male Employees.

Group	Teaching	Non-teaching	Class-D
Teaching	0	.13540	1.6423
Non-Teaching		0	1.506
Class-D			0

Level of Significance .05 DF = 49
 Tabulated 'F' value 1.68

While applying ANOVA, F- ratio among three groups, skeletal muscle % was found significant at .05 level. The post hoc, t-value for skeletal muscle % was observed insignificant between teaching and non-teaching (.135), teaching and class-D (1.64), non-teaching and class-D (1.50)as shown in table 4.12.

Discussion of Findings

When the body mass index (BMI) was compared their exist insignificant difference but when the post hoc test was applied their exists significant difference between three groups. The results shows that non-teaching staff had found lower BMI in comparison to teaching and class D employees. It may be due their lack of physical activity and due to the nature of job. Previous study of Anthropometric characteristics of high level European junior basketball players (Jelicic M, Sekulic D. and Marinovice M, 2002) [6] supports the results of this study which shows that when centers were compared with centers, guards and forwards with forwards there were insignificant difference for their body mass index.

The results of the table 2 showed that there were significant difference between all the three categories for their BMR (Basal metabolic rate) when it was statistically analyzed the calculated mean values also represent minimum difference in their BMR. The reasons for this may be in the difference in their body mass and body composition.

The result of the table 3 depicts that there were significant difference between all the three categories for their Skeletal muscles when it was statistically analyzed the calculated mean value also represent less difference between teaching and non-teaching but Class-D have more mean value and reason for this their nature of job and physical activity in their daily routine.

Conclusion

1. It was observed that there were insignificant differences among Teaching, Non-Teaching and Class-D for their Body mass index.
2. Significant differences were found among Teaching, Non-Teaching and Class-D Male employees for their Basal metabolic rate.
3. There was significant differences among Teaching, Non-Teaching and Class-D Male employees for their skeletal muscles.

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