

# COMPARATIVE STUDY OF BODY MASS INDEX AMONG SEDENTARY FEMALE TEACHERS OF SELECTED DISCIPLINES

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## Abstract

The purpose of the study was to compare the Body Mass Index (BMI) of the sedentary female teachers related to the selected four disciplines General College, Medical College, Management College and Engineering College. The total eighty (twenty sedentary female teachers from each discipline) female subjects ranging from 30 to 45 years (Mean  $\pm$  SD; Age  $42.34 \pm 0.54$  years, Height  $1.59 \pm 0.01$  metre, Weight  $65.28 \pm 1.17$  kg) of age were selected from the different colleges of NCR region (i.e., Delhi, Ghaziabad, Muzaffarnagar and Meerut). The subjects were tested by BMI method to categorize them according to the Indian norms of BMI. To compare all the means of BMI scores measured from sedentary female teachers in selected disciplines, one way analysis of variance (ANOVA) was used at the level of significance was set at 0.05. There was significant difference found between the BMI of the sedentary female teachers from selected disciplines. Since, the one way analysis of variance was found significant, the least significant difference (LSD) test was calculated. The Post Hoc test showed that the difference between General College Teachers and Medical College Teachers on their in terms of means of Body Mass Index is significant at 5% level, as the p-value for this mean difference is 0.00 which is less than 0.05. Similarly, the p-value for the significance of difference between General College Teachers and Management College Teachers on their in terms of means of Body Mass Index is significant at 5% level; the p-value is 0.00, which is less than 0.05. However, there is significant difference between the means of the General College Teachers and Engineering College Teachers as far as Body Mass Index are concerned because the p-value is less than 0.05.

**Keywords:** BMI, General College, Medical College, Management College, Engineering College and Disciplines.

## Introduction

Carrying on with a sound life it is exceptionally important to an individual have great actual wellness and liberated from all sicknesses. An individual who have great wellness he/she can extend their life more effectively than who have unfortunate wellness. In present time heftiness is a greatest or consuming issue in all country. Heftiness brings bunches of wellbeing related issues throughout everyday life. Everybody needs to need more mindful about their wellbeing and wellbeing related issues. Corpulence is huge gamble component to increment heart sicknesses, hypertension, malignant growth, and Diabetes. In stationary life we are exceptionally thoughtless about our wellbeing and nourishment. BMI is at present the most broadly utilized strategy for recognizing kids and youths with abundance adiposity and related risk for the advancement of metabolic illness.

Body mass index (BMI) is least complex equation to really take a look at an individual overweight or pre-large and inclined to risk of illnesses. BMI is utilized regularly by clinicians and scientists to assess the predictability of one's body weight. The BMI has a to some degree high relationship with fat than do gauges dependent just upon height and mass (McArdle D.William. 2001). With the assistance of body mass index (BMI) an individual can forestall heaps of illnesses. For all over improvement an individual must be in great shape. Body mass index (BMI), an estimation which looks at weight and level, characterizes individuals as overweight (pre-large) in the event that their BMI is somewhere in the range of 25 and 30 kg/m<sup>2</sup>, and fat when it is more noteworthy than 30 kg/m<sup>2</sup>. Heftiness is most peril factor for increment hazard of cardiovascular infection. At the point when an individual goes under the gamble element of illness he/she might ready to do at any point more work and carry on with solid life. Body mass index (BMI) estimation gives clues to those individuals who need to carry on with sound life and liberated from sicknesses. At the point when an individual fit and liberated from sickness he/she can give the cutting edge sound. BMI is definitely not an immediate estimation of muscle to fat ratio, and BMI ranges didn't address the degree of heftiness. Most examinations have shown that, as BMI builds, the gamble of stoutness increments. Moreover recall that BMI doesn't perceive muscles mass and fat mass. A particularly athletic person whose weight is higher in view of muscle could have a BMI that shows that they are overweight, when their weight is fundamentally higher due to mass. BMI doesn't actually evaluate the degree of muscle to fat proportion.

In this study, Body Mass Index (BMI) was utilized to survey muscle versus fat conveyance. BMI is a level ward proportion of weight frequently utilized as a proportion of entire body size and the level of heftiness inside populaces. Many examinations had been finished around here to figure out the weight level individuals connected with different locales, nations, urban communities and so forth (Kukulu, 2010). This study was been chosen to compare the Body Mass Index (BMI) of the sedentary female teachers related to the selected four

disciplines General College, Medical College, Management College and Engineering College. This study will reveal that which disciplines of sedentary female teachers is fitter and which is more prone to diseases.

## Methodology

### *Participants*

To facilitate the study, total eighty (twenty sedentary female teachers from each discipline) female subjects ranging from 30 to 45 years (Mean  $\pm$  SD; Age  $42.34 \pm 0.54$  years, Height  $1.59 \pm 0.01$  metre, Weight  $65.28 \pm 1.17$  kg) of age were selected from the different colleges of NCR region (i.e., Delhi, Ghaziabad, Muzaffarnagar and Meerut). Subjects were divided into four disciplines (each discipline consists of twenty teachers) on the basis of their discipline (General College, Medical College, Management College and Engineering College). The purposive sampling technique was used to obtain the required data. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. Keeping view a feasibility criteria and relevance of the variables in the study. All the necessary information pertaining to the requirement of the testing procedure was imparted to them. To make the data and research findings more authentic, positive attitude towards investigation was emphasized.

**Height Measurement:** With the help of Stadiometer the height of the students was measured. The subjects were asked to stand erect, barefooted on a plane horizontal surface on the Stadiometer, with their heels completely touching the surface. They were requested to stretch the body upward as much as possible without her heels leaving the ground. The head and face was checked for being in F.H plane (Frankfurt Horizontal plane). The investigator adjusted the truncheon and infra- orbital points in a horizontal line. The crossbar of the Stadiometer is adjusted so that its lower edge touches the highest point of the subject's head. The measurement was recorded in centimetres.

**Weight Measurement:** Portable weighing machine was used for taking weight. For accuracy and authenticity of the weight it was carefully checked, the weighing machine put in plane surface. The zero error (alignment) of the machine was checked before asking the subject to stand barefooted, and subject was advised that the spine should be erect on the platform in order to balance with equal weight on both feet with minimal possible clothes and after taking the subject's weight, the subject was said to get down.

**Body Mass Index:** The BMI (Body Mass Index) of the students was calculated with the following (Miller, 2006)  $B.M.I. = \text{Weight (in Kg)} / \text{Height}^2 \text{ (in meter)}$ .

The Weight Index is a real assessment gotten from your height and weight. The body mass index (BMI,) determined as  $\text{weight (kg) / height (m)}^2$  is the most generally involved index in kids and adults. BMI is effortlessly acquired from straightforward anthropometric measures and has laid out reference guidelines (Kuczmarskiet al., 2000; Cole, Bellizzi, Flegal and Dietz, 2000).

### Data Analysis

Descriptive statistics were calculated for all measures. Data screening was used to ensure all dependent variables met the assumptions necessary for the use of parametric statistics before data analysis. In addition, one way Analysis of Variance (ANOVA) was employed to find out the inter-group differences. To test the hypothesis, the level of significance was set at 0.05. For further analysis, LSD test was used as the Post-Hoc Test. Statistical Package for Social Science (SPSS) version 20.0 was used.

### Results

Table 1 shows the mean, standard deviation, standard error of mean, minimum and maximum values related to BMI among selected sedentary female teachers related to the selected four disciplines General College, Medical College, Management College and Engineering College.

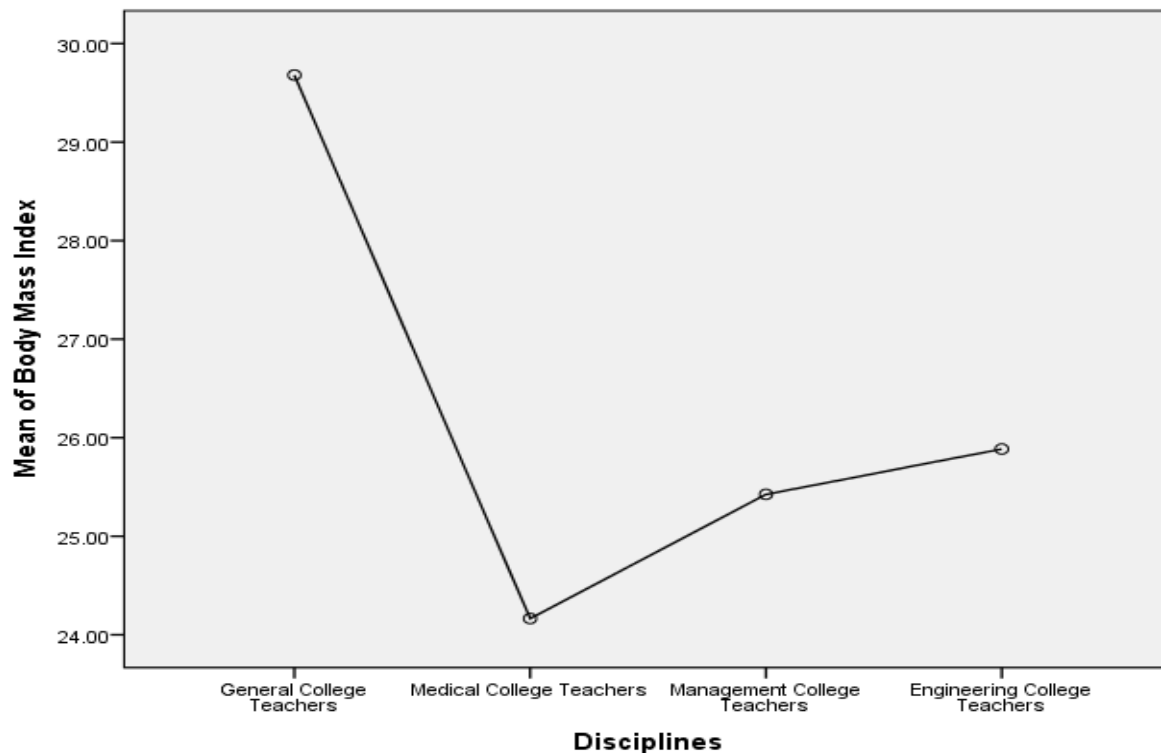
**Table 1: Descriptive Statistics related to BMI among selected sedentary female teachers from different disciplines**

Disciplines		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Body Mass Index	General College Teachers	20	29.68	4.90	1.10	27.39	31.97	22.80	40.60
	Medical College Teachers	20	24.17	3.13	0.70	22.70	25.63	19.40	31.20
	Management College Teachers	20	25.43	2.63	0.59	24.20	26.65	20.60	29.40

Engineering College Teachers	20	25.89	3.38	0.75	24.31	27.46	21.90	31.20
Total	80	26.29	4.10	0.46	25.38	27.20	19.40	40.60

Table 1 indicates the means of BMI score measured in selected sedentary female teachers groups related to different disciplines. The highest mean (29.68) of BMI was found in General College Teachers and the least mean (24.17) was in Medical College Teachers. Similarly the highest Std. Deviation (1.10) was found in General College Teachers and the lowest Std. Deviation (0.59) was found in Management College Teachers. It is clear the mean value of BMI is highest among the Teachers in the General College Teachers (29.68) in comparison to that of Medical College Teachers (24.17), Management College Teachers (25.43) and Engineering College Teachers (25.89).

From the above findings it can be very easily understood by looking to the graphics in Figure 1; Dependent variable (Body Mass Index) on the Y axis and the independent variable (Different Disciplines) on the X axis.



**Figure 1: Means Plot showing a visual representation of the group means of BMI of selected sedentary female teachers from different disciplines**

From Figure 1, it is clear the mean value of Body Mass Index is highest among the teachers in the General Colleges in comparison to that of Medical Colleges, Management Colleges and Engineering Colleges. On the basis of the results obtained above, it may be inferred that the Body Mass Index among the teachers in the different disciplines General College Teachers is maximum.

**Table 2: Analysis of Variance (ANOVA) results with regard to Body Mass Index and sedentary female teachers among different disciplines**

	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Body Mass Index	338.40	3	112.80	8.66	0.00*
Between Groups	989.48	76	13.02		
Within Groups	1327.88	79			
Total					

\* Significant at the 0.05 level.

It is evident from Table 2 that results of Analysis of Variance (ANOVA) indicates that there was a significant difference in Body Mass Index scores among sedentary female teachers of different disciplines because  $p < 0.05$  and F value is 8.66, which is found greater than critical value i.e.  $F_{(0.05, 3, 76)} = 2.73$ .

Since; the F-value is significant, the null hypothesis of no difference among the means of four groups is rejected. Therefore, Post-hoc test (LSD) was applied to find out differences between paired means among various teaching disciplines (General Colleges, Medical Colleges, Management Colleges and Engineering Colleges) with regard to Body Mass Index of sedentary female teachers. The results of Post-hoc test have been presented in Table 3.

**Table 3: Comparison of Mean Values of Body Mass Index in Post-Hoc Test (LSD) among different disciplines**

(I) Disciplines	(J) Disciplines	Mean Difference (I-J)	Std. Error	Sig. (p-value)
General College Teachers	Medical College Teachers	5.52*	1.14	0.00
	Management College Teachers	4.26*	1.14	0.00

	Engineering Teachers	College	3.80*	1.14	0.00
Medical College Teachers	General College Teachers		-5.52*	1.14	0.00
	Management College Teachers		-1.26	1.14	0.27
	Engineering Teachers	College	-1.72	1.14	0.14
Management College Teachers	General College Teachers		-4.26*	1.14	0.00
	Medical Teachers	College	1.26	1.14	0.27
	Engineering Teachers	College	-0.46	1.14	0.69
Engineering College Teachers	General College Teachers		-3.80*	1.14	0.00
	Medical Teachers	College	1.72	1.14	0.14
	Management Teachers	College	0.46	1.14	0.69

\* The mean difference is significant at the 0.05 level.

From Table 3 it can be seen that the difference between General College Teachers and Medical College Teachers on their in terms of means of Body Mass Index is significant at 5% level, as the p-value for this mean difference is 0.00 which is less than 0.05. Similarly, the p-value for the significance of difference between General College Teachers and Management College Teachers on their in terms of means of Body Mass Index is significant at 5% level; the p-value is 0.00, which is less than 0.05. However, there is significant difference between the means of the General College Teachers and Engineering College Teachers as far as Body Mass Index are concerned because the p-value is less than 0.05.

## Discussion and Conclusion

The present study aimed to evaluate the Body Mass Index (BMI) of the sedentary female teachers related to the selected four disciplines General College, Medical College, Management College and Engineering College. The trend of increase in fatness in the sedentary female General College teachers of the present study is a signal for the health planners and if remedial measures are not planned in time, the consequences of this will be bad. The observation needs to be taken seriously because increased body fat is known to be associated with a wide variety of health problems. Physical inactivity has been recognized as a significant gamble factor for coronary heart sicknesses in females, as well as being related with untimely mortality and corpulence. The typical Indian has become frightfully sedentary and is inclined to cardiovascular

illnesses. They come up short on expected self-inspiration to keep them fit and by middle age, tragically turns into an ill-suited resident.

The finding of the review uncovered that there was a massive contrast in the BMI scores of sedentary female understudies of different chose disciplines. BMI is at present the most broadly utilized strategy for recognizing kids and youths with abundance adiposity and related risk for the advancement of metabolic illness. There is proof proposing that the actual work range, a lot of time spent stationary may add to expanded fatness (Marques et al., 2016). A new meta-examination tracked down moderate-to-strong evidence for a relationship of generally speaking stationary time with some wellness markers (Van Ekris et al., 2016). This finding is in concurrence with the consequences of (Pourranjbar, 2012) and (Canbulat, 2011). Each of the four discipline sedentary female went under sound weight (ordinary) classification as indicated by standards. The explanation that all sedentary female go under ordinary classification of BMI, yet opposite side outcome shows huge different in BMI scores of chosen four disciplines. These different might be because of the different kind of ways of life (Thompson et al., 2004), inconsistent heap of studies and inconsistent degree of proactive tasks done. Be that as it may, there was massive distinction found among the teachers in the General Colleges in comparison to that of Medical Colleges, Management Colleges and Engineering Colleges. This might be because of comparative way of life, likeness of responsibility as well as utilization of food and so forth. Essentially, actual activity likewise keeps up with body mass index (BMI) values, which is a significant calculate their relationship to constant illnesses that cause reliance in more established ladies populaces (Bhaskaran, Silva, Leon and Douglas, 2018). In conclusion, our findings are of concern and represent a serious public health problem that should be addressed within this unique population in future studies. Within the limits and limitation of the study, it can be concluded that the General Colleges teachers are significantly more physically unfit than the Medical College Teachers. Further studies with appropriate designs that might show a possible cause-effect relationship between the variables analyzed in the present study are needed.

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