RESEARCH REVIEW JOURNALS
Volume-04
Issue-03
March-2019

ISSN: 2455-3085 (Online)
RESEARCH REVIEW International Journal of Multidisciplinary
www.rrjournals.com[UGC Listed Journal]

Relationship of body mass index to physical activity of college women

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ARTICLE DETAILS

Article History
Published Online: 13 March2019

Keywords
physical activity, B.M.I.

ABSTRACT

The sample of 100 college women having age range between 18 to 25 years studying in different degree classes in M.C.M.DAV.college of Chandigarh affiliated to Panjab University wwas selected by using random sampling technique. BMI was administered to evaluate subject's level of obesity. On the basis of BMI, four groups namely underweight (BMI<18.5), normal weight (18.5-22.9), overweight (23-24.9) and obese (BMI>25) were formed as recommended by ICMR (2009). Each group was consisted of 100 subjects. In order to determine the body mass index (BMI), weight and height of all subjects was measured and recorded in kilograms and meters. Body Mass Index of the subjects was determined by using the following formula. International Physical Activity Questionnaire (IPAQ) protocol (2005): was used to measure the physical activity in college women.

1. Introduction

In modern era people have less physical activity due to this there is bad effect in their physical and mental health. physical activity is connected with better coping with stress and higher level of emotional intelligence which is important in everyday life with contact between people Physical fitness is directly concern with the way of physical activity. The role of physical activity in the development of physical fitness is fluctuating dynamic process of health and functional efficiency which is maintained at optimum levels by regular daily use, but on the other hand is decreased and degenerated quite rapidly by neglect of this regular daily application Physical activity has four different dimensions: one type (aerobic or, and occupational, household, or leisure time activities), second is intensity (low, moderate, or vigorous activity), third is frequency (how often it is done) and fourth is duration (length of time the activity lasted. *Mahar & Rowe,(2002)*

conti,(2007) The earliest concept of physical activity is for the body equilibrium. The term exercise is mentioned in the work of Hippocrates and in the work of many other scholars of ancient Greece. The nature of the body even before being officially sanctioned by the Olympic Games, it is through play-activities that the child discloses it's real self and clearly expresses its inner feelings.

Sundland et al., (2008) Without physical activity life become worthless so it is important to perform Regular physical exercise of moderate intensity like walking, cycling, or playing sports is very helpful for health. Regular physical exercise reduce many health risk and give strength to live healthy life.

2. Materials and Methods

The sample was made by 100 girls, , aged from 18-21 from MCM Dav college chandigarh.. About 60% of respondents participate in high level physical activity, 25% in moderate physical activity and only 15% low physical activity. - body mass index . BMI was administered to evaluate subject's level of obesity. On the basis of BMI, four groups namely underweight (BMI<18.5), normal weight (18.5-22.9), overweight (23-24.9) and obese (BMI>25) were formed as recommended by ICMR (2009). International Physical Activity Questionnaire was administered to evaluate subject's level of physical activity.

3. Results

There were signifficant correlations between physical activity and B.M.I.of college girls.

Table 1: Descriptive statistics of physical activity among underweight, normal weight, over weight and obese college women

Variable	Group	N	Mean	Std. Deviation	Std. Error
Physical activity	Under Weight	100	2912.33	1232.61	123.26
	Normal Weight	100	3416.89	1116.2	111.62
	Over Weight	100	2656.44	972.22	97.22
	Obese	100	2742.74	964.22	96.42

The appraisal of table 4.2.1 revealed that the physical activity mean scores of underweight, normal weight, overweight and obese groups were 2912.3, 3416.8, 2656.4 and 2742.7 with the standards deviation of 1232.6, 1116.2, 972.2 and 964.2 respectively. It seems that normal weight had high score of physical activity whereas in obese subject physical activity score was low which indicate that obese women were may be less physically active.

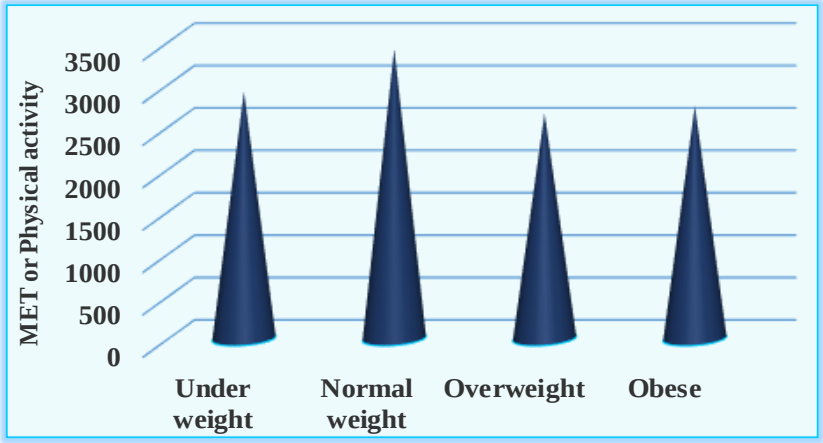


Figure 1: Mean scores of physical activity level among obese and non-obese college women

The result of analysis of variance of mean scores for the underweight, Normal weight, overweight and obese subjects of college women on their metabolic equivalent of task has been presented in the table 4.2.2.

Table 2: Analysis of variance (ANOVA) of mean scores of physical activity for underweight, normal weight, over weight and obese groups

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Physical activity	Between Groups	3.473E7	3	1.158E7	9.97*	.000
	Within Groups	4.594E8	396	1160048.97		
	Total	4.941E8	399			

*Significant at 0.05 level, $F_{0.05}$ (3,396) = 2.62

It may be gleaned from table 4.2.2 that underweight, normal, over-weight and obese college women differed significantly on physical activity as the calculated F value of 9.97 was found to be greater than the tabulated value of 2.62 at .05 levels.

To find out the quantum and leaning of the differences between paired means of physical activity among underweight, normal weight, over-weight, and obese college women Scheffe's post hoc test was applied and results has been depicted in table 4.2.3.

Table 3: Scheffe's post-hoc comparison of paired means among obese and non-obese college women on physical activity

Variable	Paired Groups		Mean Difference	Std. Error	Sig.
MET or Physical activity	Under weight	Normal weight	-504.56*	152.31	.001
		Over weight	255.89	152.31	.094
		Obese	169.59	152.31	.266
	Normal weight	Over weight	760.45*	152.31	.000
		Obese	674.15*	152.31	.000
	Over weight	Obese	-86.30	152.31	.571

*Significant at .05 level

It may be observed from the table 4.2.3 the mean scores of physical activity among underweight college women were found to be differed when compared to the normal weight college women as their mean differences of -504.56 were found to be statistically significant. Significant differences were also observed between normal weight and overweight, normal weight were 760.45 and 674.15 respectively. No significance mean difference observed between the underweight and overweight, underweight and obese college women as their mean difference of 255.89 and 169.59 were found to be statistically insignificant at 0.05 level.

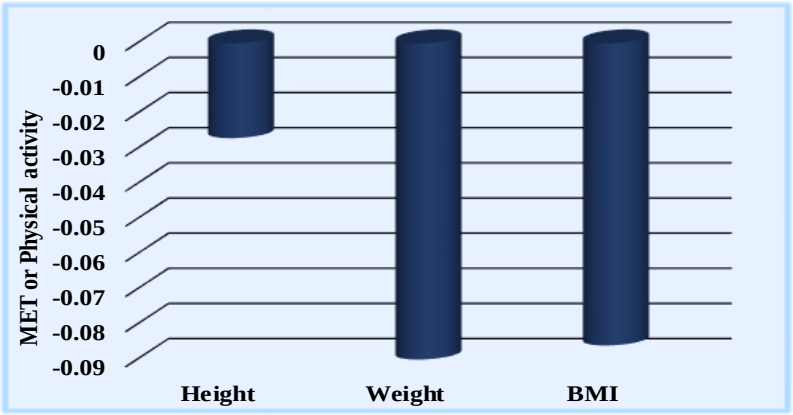
To discover the relationship between B.M.I of college women and physical activity the Pearson's product moment correlation was computed and coefficients of correlation (r) has been given in table 4.2.4 and the correlation has been depicted in figure 4.2.2.

Table 4: Relationship of B.M.I.to physical activity of college women

S. No.	Variables Correlated	Coefficients of Correlation (r)
1	Height and metabolic equivalent of task	-.027
2	Weight and metabolic equivalent of task	-.090
3	BMI and metabolic equivalent of task	-.086

An evaluation of table 4.2.4 revealed that the components of height, weight and body mass index of

college women did not show any statistically significant coefficients of correlation with physical activity of college women. But the result shows negative correlation between body mass index and physical level which indicate that as the energy expenditure decrease, B.M.Iwill be increased. B.M.Iincreased with physical activity decrease.



4. Conclusions

Results reveals that normal weight group of college women had high score of physical activity level indicating higher level of physical activity among them whereas overweight and obese college women were having low level of physical activity.this study concluded that more physical activity concern with less obesity and same way less physical exercise make girls more obese**.** Overweight and obese participants engaged in less overall physical activity as compared with normal weight individuals Significant differences were observed among underweight, normal weight, overweight and obese women for physical activity level. The results with study of ***Hansen et al. (2013)*** in which they found overweight and obese adolescents performed less overall physical activity as compared to normal weight adolescents. These findings are in agreement with other studies in the literature. Normal weight women were more physically active than overweight and obese women.

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