ASSOCIATION OF OBESITY AND SOCIO-ECONOMIC STATUS AMONG TRICENARIANS AS WELL AS 40 YEARS OLD OF UPPER ASSAM DIVISION OF NORTH-EAST INDIA

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ABSTRACT

Obesity is considered as one of the vital health issue among the public that has been throughout the world. The objective of the study to explore the economic and social causes associate with overweight and obesity among Tricenarians as well as 40 years old men residing in Upper Assam division of North-East India. This is a comparative cum descriptive study conducted among men (N=966), aged between thirty and forty years. At recruitment, Socio-economic status (SES) of each sample was assessed through updated Kuppuswamy's socio-economic status scale, anthropometric parameters such as body height and weight were measured and then Body Mass Indices (BMI) were calculated to assess overweight and obesity. In the present study it is noticed that socio-economic classes of people living in Upper Assam division namely upper class, upper middle class and lower middle class belong to pre-obese (overweight) categories while lower upper class and lower class people are in normal category as per Asian Body Mass Index (BMI) criterion value.

Keywords: Epidemic, Osteoarthritis, Sleep apnea, Surrogate, Tricenarian

Introduction

Over the past four decades the worldwide prevalence of obesity has almost tripled and therefore it has become a global epidemic that is rising yet in both developed and developing countries. In the year 2016, more than 1.9 billion adults, eighteen years old and older were in overweight category. Among them, over 650 million were obese. Obesity and Overweight, together they are globally considered as the fifth most common risk factor for death and account for at least 2.8 million expires in every year. Additionally, they substantially maximize the possibility of non-communicable diseases such as cardiovascular diseases, different psychological disturbances, endocrine and metabolic problems, non-insulin-dependent diabetes mellitus, sleep apnea, osteoarthritis and certain types of cancer (Barich, F. and Barkat, A. et al., 2018). It has been reported that there is a steady growth in the occurrence of overweight-obesity from various population of India. The Body Mass Index (BMI) of individual is considered as the most widely used derived surrogate, non-invasive and inexpensive anthropometric assessment that provides a simple numeric measure of overweight and obesity. Again in a research study Rengma, M.S., Sen, J. and Mondal, N. studied regarding socio-economic, demographic and lifestyle determinants of overweight and obesity among adults of Northeast India. Their study clearly revealed that age, education, occupation and higher income had greater effects on the overweight and obesity prevalence significantly. Also, Occupation, physical activity and sedentary lifestyle have active influences in the occurrence of overweight and obesity because they tend to raise adiposity among adults in question. It has been reported that persons with less physical activity and sedentary lifestyle have more chances of getting greater overweight-obesity.

Materials and Method

The investigators applied random sampling method while selected of nine hundred sixty six (N=966) adult working men as samples for the study. After, these samples were categorised in to different socio-economic class as per socio-economic condition from various districts of Upper Assam division. Respondents were of age ranging between thirty to forty years. After having been informed about the objective and procedure of the entire study, all samples took part in this study with their own interest.

The research instruments applied in the present study were Kuppuswamy's socio-economic status scale and SF-36 Questionnaires to assess overall health status. The used socio-economic status scale was updated by Dr. Nazia Tabassum and Dr. R.L. Lakshman Rao while SF-36 was developed by John E. Ware, Jr.

To analysis the collected data one way analysis of variance (ANOVA) was applied to find out whether any significance difference was there in Body Mass Index (BMI) among five different socio-economic groups. During statistical analysis the level of significance was set at 0.05 in the testing of two tailed hypothesis.

Results and Findings

Table-1 revealed that the descriptive statistics of the data on mean BMI of among male tricenarians as well as 40 years old working men belong to different Socio-economic groups. Table 2 showed that the F-value was significant at 5% level as the p-value attached with the calculated F-value is 0.00 which was not more than 0.05. Hence, the null hypothesis of no difference in the BMI among the respondents in all the five socio-economic class was rejected. Therefore, LSD post hoc test was applied to compare the means in different pairs. In Table-3, LSD comparisons shown that the five different socio-economic categories were significantly different on Body Mass Index (BMI) as *P*-value (significant at 0.05 level) for all respective pair wise comparison was less than 0.05.

Discussion

Based on graphical representation and statistical analysis evident from Figure 1, Table 1 and Table 3, it was inferred that with Body Mass Index (BMI) mean value 26.86 the adult men of upper socio-economic class group and with 25.54 Body Mass Index (BMI) mean value the upper middle socio-economic class group were of the overweight (pre-obese) categories. However, the upper middle socio-economic class group was on lesser side of obese-I categories than upper socio-economic class group. The mean Body Mass Index (BMI) of adult men belonging to lower middle class was 23.89 and as per Asian criterion they belonged to overweight (pre-obese) categories. And with 22.32 Body Mass Index (BMI) mean value the lower upper Socio-economic class group and with BMI value 19.12 the low Socio-economic class group was of the normal body weight. However, the low Socio-economic class group was on higher side of underweight categories in compare to lower upper Socio-economic class group. The findings of the study showed that the population belonged to upper socio-economic class group were of absolutely pre-obese categories and upper middle socio-economic class group were of pre-obese categories too but upper socio-economic class group was in higher side of overweight (pre-obese) categories. It was found that subjects of lower middle socio-economic status group belonged to (pre-obese) overweight categories too. Again, it was revealed that lower upper socio-economic and lower socio-economic class group categorically belonged to normal body weight based on Asian Body Mass Index (BMI) criterion value. The finding would be attributed to the fact that the upper socio-economic status groups with higher income and disposable money to afford luxury in terms of comfort living, sedentary life style, eating outside home etc. Hence, the affordability factors due to high income

would be the associated causal factor that tricenarians (male) as well as 40 years old working men of upper socio-economic status group were more susceptible to pre-obese categories. The findings of the present research study are in partial consonance with research study studied by findings of Luhar S. et al. (2018).

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Table 1: Descriptive Statistics of Body Mass Index (BMI)

	N	Mean	Std. Dev	Std. Error	Minimum	Maximum
Upper Class	186	26.86	4.26	0.31	18.40	36.70
Upper Middle Class	198	25.54	3.90	0.28	14.90	35.30
Lower Middle Class	191	23.89	3.06	0.22	14.90	30.80
Lower Upper Class	196	22.32	3.05	0.22	15.00	31.60
Lower Class	195	19.12	3.22	0.23	14.20	31.20
Total	966	23.52	4.43	0.14	14.20	36.70

Table 2: Analysis of variance on Body Mass Index (BMI) among tricenarians (male) as well as 40 years old men having different Socio-economic groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6980.61	4	1745.15	140.25*	0.00
Within Groups	11957.89	961	12.44		
Total	18938.50	965			

Table 3: Post hoc mean comparison on Body Mass Index (BMI) among male tricenarians as well as 40 years old men having different Socio-economic groups

Socio-economic Class (I)	Mean (I)	Socio-economic Class (J)	Mean (J)	Mean Difference (I-J)	Std. Error	Sig.
Upper class	26.86	UMC	25.54	**1.32***	0.36	0.01
		LMC	23.89	**2.97***	0.36	0.00
		LUC	22.32	**4.54***	0.36	0.00
		LC	19.12	**7.75***	0.36	0.00
Upper middle class	25.54	LMC	23.89	**1.65***	0.36	0.00
		LUC	22.32	**3.22***	0.36	0.00
		LC	19.12	**6.43***	0.36	0.00
Lower middle class	23.89	LUC	22.32	**1.57***	0.36	0.00
		LC	19.12	**4.77***	0.36	0.00
Lower upper class	22.32	LC	19.12	**3.21***	0.36	0.00

*. The mean difference was significant at the 0.05 level.

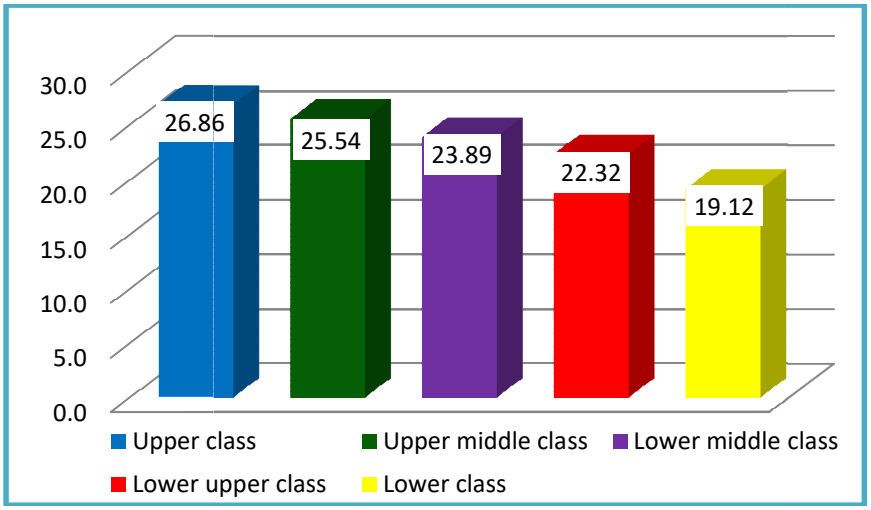

Fig 1: Graphical representation of BMI among tricenarians (male) as well as 40 years old working men having different Socio-economic groups