

Original article:

Study of influence of socio-economic status and television on obesity among undergraduate medical students in south India

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Abstract:

Background: Obesity is the most common expression of unhealthy diet often combined with lack of physical activity. The present work was planned to study the influence of socio-economic status and television on obesity among undergraduate medical students in Andhra Medical College (AMC), Vishakhapatnam, Andhra Pradesh, India.

Materials and Methods: An institution based cross sectional study was conducted during the period of June – Nov. 2010. A total of 205 students of AMC were included for the study. A pretested questionnaire was administered. Study population was selected by stratified sampling. Physical activity was classified based on MET classification. BMI was classified based on Asia pacific norms.

Results: It was observed that the prevalence of central obesity in those watching TV for more than three hours was least as 4.76% while it was highest (16.67%) in those watching 1-2 hours TV every day. Maximum occurrence of overweight/obesity was seen in SCs at 58.33% followed by OCs at 51.35%, BCs 48.70% and least in STs at 41.17%. Maximum number of normal weight students was found among STs 52.95% followed by OCs at 47.3%, SCs at 41.67% and least in BCs at 38.47%.

Conclusion: From present study it was concluded that socio economic status and television watching plays a vital role in pathogenesis of obesity.

Keywords: Obesity, socio-economic status, medical students

Introduction:

Obesity is a common manifestation of unhealthy diet often associated with lack of physical activity. Obesity is a universal health problem, which is not only a recognized disease in its own right, but also a major risk factor for a large number of diseases including CVD, NIDDM, certain cancer, gall bladder disease and hypertension. Significantly the increase in number of obese is notably more, amidst regions with rapidly growing economies, esp. South East Asia. Nearly 250 million people in the third world countries suffer from obesity. In India, the prevalence of obesity is 12.6% in women and 9.3% in men.(1)

To put it simply; more than 100 million people were obese in India. We are truly amidst the grip of an obesity epidemic, considering its morbid ramifications. While in some Asian populations the prevalence of obesity is lower than that in Europe, the health risks associated with obesity occur at a lower body mass index (BMI) in Asian populations. In contrast, Polynesians tend to be muscular and to have a higher BMI than Europeans, but lower body fat levels for the same BMI. These observations suggest that the current WHO criteria to define overweight and obesity using BMI may not be appropriate for some populations in the Western

Pacific Region.(2) There are a number of factors influences over pathogenesis leading to obesity. Of them socio-economic status plays a vital role. With this background in mind present study was planned to study of influence of socio-economic status and television on obesity among undergraduate medical students in Andhra medical college, Vishakhapatnam, Andhra Pradesh, India.

Materials and Methods:

An institution based cross sectional study was carried out during the period of June – November 2010 at Andhra Medical College (AMC), Vishakhapatnam, Andhra Pradesh, India. Data was collected from a sample of 205 undergraduate medical students of

AMC in the age group of 18 to 25 years studying 1st to 7th semester. A pretested questionnaire was administered. Study population was selected by stratified sampling. BMI was classified based on Asia pacific norms. Physical Activity was classified based on Metabolic Equivalents (MET) classification. Calorie intake was classified based on ICMR recommendation. Data collected was analysed using MS Excel.

Results:

A total of 205 students participated in the study. Male students were 106 (51.7%) & female students were 99 (48.3%).

Table 1: BMI Vs Social Status

| BMI | Social Status | | | | Total |
|-------------|----------------|----------------|----------------|----------------|----------------|
| | SC | ST | BC | OC | |
| Underweight | 00 (0.0%) | 01 (5.88%) | 10 (12.83%) | 01 (1.35%) | 12 (5.85%) |
| Normal | 15 (41.67%) | 09 (52.95%) | 30 (38.47%) | 35 (47.30%) | 89 (43.42%) |
| Over weight | 08 (22.22%) | 02 (11.76%) | 19 (24.35%) | 17 (22.97%) | 46 (22.44%) |
| Obese | 13 (36.11%) | 05 (29.41%) | 19 (24.35%) | 21 (28.38%) | 58 (28.29%) |
| Total | 36 (100%) | 17 (100%) | 78 (100%) | 74 (100%) | 205 (100%) |

From table 1, it was observed that maximum occurrence of overweight/obesity was seem in SCs at 58.33% followed by OCs at 51.35%, BCs 48.70% and least in STs at 41.17%. Maximum number of

normal weight students was found among STs 52.95% followed by OCs at 47.3%, SCs at 41.67% and least in BCs at 38.47%.

Table 2: Waist-hip ratio Vs Social status

| Waist-hip ratio | Social status | | | | Total |
|-----------------|----------------|---------------|----------------|----------------|-----------------|
| | SC | ST | BC | OC | |
| Normal | 30 (83.33%) | 14 (82.35) | 68 (87.1%) | 62 (83.78%) | 174 (84.88%) |
| Central Obesity | 6 (16.67%) | 3 (17.65%) | 10 (12.82%) | 12 (16.22%) | 31 (15.12%) |
| Total | 36 (100%) | 17 (100%) | 78 (100%) | 74 (100%) | 205 (100%) |

It was observed from table 2, that prevalence of central obesity was least in social status BC (12.82%) and highest in ST (17.65%)

Table 3: BMI Vs TV watching

| BMI | TV watching | | | | Total |
|--------------|----------------|----------------|----------------|----------------|----------------|
| | <1 hr | 1 to 2 hr | 2 to 3 hrs | >3 hrs | |
| Under weight | 05 (5.75%) | 03 (5%) | 03 (8.11%) | 01 (4.76%) | 12 (5.85%) |
| Normal | 34 (39.08%) | 29 (48.33%) | 18 (48.65%) | 08 (38.1%) | 89 (43.42%) |
| Over weight | 27 (31.03%) | 11 (18.33%) | 04 (10.81%) | 04 (19.05%) | 46 (22.44%) |
| Obese | 21 (24.14%) | 17 (28.34%) | 12 (32.43%) | 08 (38.09%) | 58 (28.29%) |
| Total | 87 (100%) | 60 (100%) | 37 (100%) | 21 (100%) | 205 (%) |

Table 3 clearly shows that as the numbers of hours of watching TV was increasing, the occurrence of obesity was also increasing, at 24.14% (<1 hour), 28.33% (1 to 2 hours), 32.43% (2 to 3 hours) and 38.01% (> 3 hours) respectively.

Table 4: Waist-hip ratio Vs TV Watching

| Waist-hip ratio | TV watching | | | | Total |
|-----------------|----------------|----------------|----------------|----------------|-----------------|
| | < 1 hr | 1 to 2 hrs | 2 to 3 hrs | 3 hrs | |
| Normal | 73 (83.91%) | 50 (83.33%) | 31 (83.78%) | 20 (95.24%) | 174 (84.88%) |
| Central Obesity | 14 (16.09%) | 10 (16.67%) | 6 (16.22%) | 1 (4.76%) | 31 (15.12%) |
| Total | 87 (100%) | 60 (100%) | 37 (100%) | 21 (100%) | 205 (100%) |

It was observed from table 4 that the prevalence of central obesity in those watching TV for more than three hours was least as 4.76% while it was highest (16.67%) in those watching 1-2 hours TV every day.

Discussion:

This study shows that 50.73% under graduate medical students in the age groups of 18-25 years were found to be 22.44% are overweight and 28.29% are obese. Similar studies carried out among undergraduate medical students by Gupta et al., (2) shows a prevalence of overweight as 17.5% and obese as 3.4%, keeping WHO BMI cut off criteria as a study variable.

Our study did not show much difference between the diet intake of overweight/obese and normal weight students. This comparison of BMI and calorie intake should be taken with a pinch of salt since measurement of BMI is highly specific and objective whereas measurement of calorie intake (24 hr recall method) is extremely subjective and prone to bias. It further emerged that maximum percentage of overweight/obesity was seen in SC students followed by OC, BC and least in ST students. It was also observed that a directly proportional association

References:

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2. Gupta et al., ICMR (1990); Recommended dietary intake for Indians, 1990, New Delhi

between obesity and hours spent watching TV. The National Family Health Survey-3 reveals that in adults 12.1% males and 14.8% females are obese (obesity defined as BMI>30 kg/m²). The difference in the prevalence is because our study is based on Asia pacific norms where over weight is defined as BMI> 23 kg/m² and obesity is defined as BMI > 25 kg/m². (3)

When the data was classified as per WHO classification, the prevalence of obesity came down from 28.29% to 4.39%. Are we in a position to ignore this vulnerable group (22.44% who swapped places from the overweight to normal category) which is simmering under the broader cloak of WHO’s BMI cut off criteria? Or does it need a shakeup call at a lower BMI cut off as per Asia pacific norms, as it is becoming increasingly evident that Asians are prone to lifestyle diseases at much lower age and weight when compared with their western counterparts.(4,5,6)

Conclusion:

From the present study it is concluded that socio economic status and television watching plays a vital role in pathogenesis of obesity.

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