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Community Medicine

PREVALENCE OF OVERWEIGHT AND OBESITY AND ITS ASSOCIATION WITH LIFESTYLE AMONG ADULT POPULATION OF BHUJ CITY , GUJARAT

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ABSTRACT

Objectives: To find out the prevalence of obesity/overweight and its association with lifestyle. **Methodology:** A cross sectional study was conducted with 512 subjects aged >18years from Bhuj city. **Results:** Positive significant association was observed between Lifestyle and Obesity in both males and females. **Conclusion:** Lifestyle is one of the major risk factor to increase rate of obesity.

KEYWORDS : Obesity, BMI, Lifestyle

INTRODUCTION:

Overweight and Obesity are defined as excessive or abnormal fat accumulation that presents a high risk to public health. Obesity become an important epidemic in both developed and developing countries. Developing country like India is suffering from' Double-Burden' that is High Socio-Economy-Class people are getting obese and Low –Economy-Class people are becoming underweight or malnourished.[1]

Obesity is a predisposing factor for cluster of Non-Communicable-Diseases like hypertension, diabetes mellitus, cardiovascular disease, sleep disorders etc. called "New World Syndrome" creates an enormous socio-economic and public health burden in poorer Countries.[2]

A better understanding of the association between obesity and lifestyle factors is necessary for effective prevention and management of obesity in adults. Hence, present study was carried out to find out the prevalence of obesity and its association with lifestyle.

Methodology:

Sampling Method: Convenience Random Sampling.
Study Type: Cross Sectional Study.
Study Period: September- November 2019
Study Area: Bhuj (Gujarat)
Inclusion Criteria: Adults aged > 18 years.

Exclusion Criteria: Children and teenagers aged ≤18 years and those who refused.

Data Collection: Predesigned and validated Google Survey Form was created with all the detailed information about the study purpose and attach with consent form was circulated by mailing it's to each and every participants of the study.

Statistical Analysis

Data was compiled and analysed by M.S.Excel. To find the frequencies and descriptive statistics mean, Stand of error were applied. To test the association between BMI and various lifestyle factors analysis of covariance test was carried out.

RESULTS:
Table 1: Sex distribution of the subjects according to BMI

	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)
Male	9(3.38)	136 (51.12)	83(31.2)	38 (14.28)	266 (51.95)
Female	36 (14.63)	89 (36.17)	109 (44.31)	12 (4.88)	246 (48.05)
Total	45 (8.78)	225 (43.95)	192 (37.5)	50 (9.77)	512 (100)

Table 1: Out of the total 512 subjects 266 male and 246 were female.

Table 2: Lifestyle-related variables among adults stratified by sex and BMI categories.

Variable	Male (n= 266)		Female (n=246)	
	Normal (n=136)	Overweight/Obese (n=121)	Normal (n=89)	Overweight/Obese (n=121)
Mean Age (years)[b]	45 ± 20.2	44.1 ± 20.9	45 ± 19.8	45.3 ± 21.1
Weight (kg) [a,b,c,d]	56.5 ± 8.3	80.24 ± 7.7	49.3 ± 8.1	67±5.4
Height (cm) [a,b]	168.8 ± 7.9	168.6 ± 7.6	156.6 ± 5.5	156.7 ± 6.2
BMI (kg/m ^ 2)[a,b,c]	19.7 ± 2.5	29.4 ± 2.5	20.2 ± 2.4	28.5 ± 1.2
Desk Job (Computer use/ TV watching) Hour/day [b]	5.23 ± 3.4	5.3 ± 3.7	5.5 ± 4.1	6.61± 3.4
MET's min/week of moderate intensity physical activity [b]	1016.5 ± 1167.6	1048 ± 1091.6	1046 ± 1162	798 ± 856.2
MET's min/week of high intensity physical activity [a,b,c,d]	2467.2 ± 2769.1	2064 ± 2297.5	1746 ± 2131.2	645 ± 844.2
Total MET's min/week[a,b,c,d]	3365.4 ± 3496.7	3052 ± 3256.5	2786 ± 3224.1	1321.5 ± 1648.2
Breakfast consumption (frequency/week) [a,b,c]	1.92 ± 2.9	3.52 ± 2.1	3.34 ± 2.6	3.09 ± 2.4
Vegetable consumption (frequency/week)[a]	3.87 ± 2.6	2.89 ± 1.2	3.66 ± 8	2.03 ± 1.2
Fruit consumption (frequency/week)[a,b]	3.26 ± 2.1	3.41 ± 2.5	3.20 ± 3.3	2.47.5
Milk and Dairy product consumption (frequency/week)[a,b,c]	4.45 ± 3.2	4.28 ± 2.0	3.89 ± 2.9	2.8 ± 1.2
Sugar / sweetened drinks consumption (frequency/week)[b,c,d]	4.82 ± 1.6	5.8 ± 0.9	3.7 ± 2.1	5.4 ± 1.3
Junk- food consumption (frequency/week)[b]	4.01 ± 2.4	4.92 ± 2.5	3.89 ± 1.4	5.12 ± 1.6

Bakery Products consumption (frequency/week)[c]	2.94 ± 1.8	3.5 ± 1.9	1.5 ± 1.7	3.78 ± 0.5
Sweets consumption (frequency/week)[b, c,d]	2.52 ± 0.9	3.91 ± 0.6	1.54 ± 2.01	4.01 ± 2.4
Energy drinks consumption (frequency/week)[b]	1.9 ± 0.1	2.9 ± 2.4	0.2 ± 0.5	1 ± 1.5

Data are recorded as mean ± standards deviation and were analysed by ANCOVA controlling for age.

Under weight: Below 18.5 kg/m^2, Normal: BMI between 18.5-25 kg/m^2, Overweight: 25-30 kg/m^2, Obese: above 30 kg/m^2

[a]$p<0.05$ for the effect of age.
[b]$p<0.05$ for the main effect of sex.
[c]$p<0.05$ for the main effect of BMI category.
[d]$p<0.05$ for the effect of the interaction sex × BMI category.

Table 2: Mean ± SD values for anthropometric and lifestyle-related variables were stratified by sex and BMI category. Two-way ANCOVA tests revealed statistically significant (p < 0.05) interactions between sex and BMI category in body weight, total METs min/week, METs-min of high-intensity physical activity and the intake of milk/dairy products and sweets.

Age, as a covariate, exerted significant (p < 0.05) effects over the majority of the selected anthropometric and lifestyle variables. The interaction sex × BMI category was significant for several of the variables taken in our study.

Compared with males , females were significantly (p < 0.05) more sedentary, much less active, especially in terms of vigorous activity, and consumed breakfast, fruits, milk/dairy products, sugar/sweetened drinks, junk foods and energy drinks on fewer days per week.

However, the weekly intake of bakery products and sweets were significantly (p < 0.05) higher in females than in males.

Obese/Overweight males and females appeared to be much less active than Normal, particularly in terms of high activity. They also had less favourable dietary habits, include less frequent intake of breakfast, fruits and milk/milk products, but had higher intake of sugar/sweetened drinks, and sweets compared with normal.

DISCUSSION:
In the present study, we examined the relationship between many lifestyle factors and overweight/obesity in adults aged >18 years, who were randomly selected from Bhuj city of Gujarat. The major findings of our study are that males compared with females have higher odds of being overweight or obese. In addition number of adults who were taking less vegetables and milk/milk products frequently per week were recorded higher of being overweight/ obese as compared to who were taking more fruits per week.

Present study carried out statistically significant fact that higher physical activity plays an important role in normal adults to control their weight. Which is similar to the study of Saudi adolescents that overweight/obesity was associated with lower levels of physical activity highlights the important role that physical activity, particularly vigorous activity, plays in preventing adolescent obesity.[3] The present results are consistent with the growing evidence showing that physical inactivity is a leading factor in obesity during adults.[4-8]

Among all of the dietary habits assessed in the present study,

overweight/obesity status was significantly associated with less frequent consumption of breakfast and sugar-sweetened drinks, junk food. In addition, reduced intake of vegetables was associated with increased odds of obesity. Other than the association with less frequent intake of sugar-sweetened drinks, energy drinks our results agree with those of many other studies. Indeed, skipping breakfast is a strong predictor of overweight and obesity in children and adolescents from many countries.[9-12]

Recommendation:
From the collective summary of present research we conclude that intake of more vegetables, milk and milk products along with daily physical activity removes the risk of being overweight or obese. However in India especially in Bhuj city of Gujarat, adults are not significantly obese. However they are likely to be obese. So it's easy to prevent the spread of Obesity by taking precautionary healthy diet and workout routine in day to day life.

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