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Prachi Marwaha

Assistant Professor, HOD,
Department of Home Science,
K.S College, Laheriasarai,
Darbhanga, Bihar, India

Sudha Tiwari

Research Scholar, M. H. College
of Home Science and Science for
Women (Auto), Jabalpur,
Madhya Pradesh, India

Impact of meal skipping on the body mass index of adults

Prachi Marwaha and Sudha Tiwari

Abstract

Obesity has been declared as a global pandemic. The effect of meal skipping may have an impact on the BMI. The purpose of our study was to examine the influence of meal skipping on the Body Mass Index (BMI) of adult subjects. A total of 172 adult persons were selected for this study. Their anthropometric measurement was done and dietary intake was calculated from recall method with the help of questionnaire. The mean score of Body mass index of meal skipping group is 29.92 which was significantly higher than 25.85 mean BMI of those subjects who do not skip their meal. It may be concluded that the meal skipping is strongly associated with increased risk of obesity.

Keywords: obesity, meal skipping, body mass index

1. Introduction

Obesity has been declared as a global pandemic that constituted one of the leading future threats to public health. This is a metabolic disorder, which is rarely incurable and is spreading to all the age groups. Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Body mass index (BMI) is a simple index of weight for height that is commonly used to classify overweight and obesity in adults. BMI provides the most useful measures of overweight and obesity as it is the same for both sexes and for all ages of adults. An increased level of BMI may cause many degenerative diseases like diabetes, hypertension, polycystic ovarian disease (PCOD), varicose vein, cardiovascular ailments, certain type cancer and other chronic diseases.

The numerous behavioral risks contributing factors including high energy intake, consumption of energy dense food (fast food), alcohol, sedentary life style, erratic eating habits are leading cause to silent self-destruction, making one in every five Indian men and women either obese or overweight. Among various causes of obesity or overweight meal skipping has not been recognized as potential risk factor. People often miss meals because they get busy or are trying to lose weight. Although skipping a meal on rare occasions is harmless, skipping meals often does have negative health effects. Meal skipping increases the feeling of hunger at the time of next meal consumption and this could cause to eat more calories than usual. Skipping meal has been associated with obesity in several scientific studies. Cross-sectional and longitudinal studies have shown that regularly skipping breakfast is associated with greater body mass index (BMI) in all age groups. The main objective of our study was to examine the prevalence of meal skipping in male and female adults and to determine the effect of meal skipping on BMI of adults in Jabalpur city.

2. Material and Methods

A total of 172 persons between age group of 25-45 years, who do not exercise were taken for this study out of which 86 were overweight or obese and 86 persons with normal weight. Exclusion criterion includes persons with other metabolic disorder (diabetes mellitus and hypothyroidism) and on other medications and pregnancy.

A predesigned questionnaire was used for data collection. The questionnaire includes information regarding dietary factors and physical activity. A dietary recall method was used to assess the number of meals skipped. Standing height and weight of the study subjects were measured in light clothes without shoes and BMI is calculated by weight in kilograms divided

Correspondence

Prachi Marwaha

Assistant Professor, HOD,
Department of Home Science,
K.S College, Laheriasarai,
Darbhanga, Bihar, India

by the square of height in meters (kg/m^2). The grading of obesity was done according to WHO criteria. Statistics analysis was done using statistical package for the social sciences (SPSS) 16.0 version. All the values were expressed as percentage and independent t-test. Statistical significance level was considered to be present when the two-tailed probability was less than 0.05.

3. Results

Table no. 4. 1 shows the classification of adults according to Body Mass Index (BMI). The BMI classification according to criteria given by world health organization (WHO).

Table 1: Classification of adults according to Body Mass Index (BMI)

Classification	BMI
Under weight	Less than and equal to 18.5 kg/m^2
Normal	19 to 24.9 kg/m^2
Grade I	25 to 29.9 kg/m^2
Grade II	30 to 39.9 kg/m^2
Grade III	Greater then and equal to 40 kg/m^2

Table 4.2 illustrates the prevalence of overweight and obesity among the study subjects. The percentage of Grade I, II and III were 18%, 28.4% and 2.9% respectively. It shows that majority of adult person falls in the category of grade II obesity.

Table 2: The prevalence of overweight and obesity

Category of BMI	Prevalence Percentage
Normal	50%
Grade I	18%
Grade II	28.4%
Grade III	2.9%
Total	172

Table 4.3 a & b. shows meal pattern of all study population. The percent of meal skipping adult is 44.2% whereas, 55.8% adults falls under the category of non-meal skipping group. The percent of breakfast, lunch and dinner skipping among adults are 59.2%, 25% and 15% respectively.

Table 3 a: Meal pattern of total adult population

Meal skipping adult's percentage	Non-meal skipping adult's percentage
44.2%	55.8%

Table 3 b. Pattern of meal skipping mean BMI and percentage

Meal pattern	Breakfast skipping	Lunch skipping	Dinner skipping	Non-meal skipping
Percent	59.2%	25%	15%	55.8%
Mean BMI	30.04	30.15	28.53	25.85

Table 4 represents the t-value 4.98, which is significant at 0.05% level. The mean score of Body mass index of meal skipping group is 29.92 that is significantly higher than 25.85 mean BMI of those subjects who do not skip their meal. It may be, therefore said that Body mass index of meal skipping group was significantly higher in meal skipping subjects.

Table 4: Meal wise M, SD, N and t-value of Body mass index

Meal skipping	Mean value	SD	N	t- value	Remark
Yes	29.92	5.798	76	4.98	Significant at 0.05% level
No	25.85	4.900	96		

4. Discussion

Our finding shows that majority of meal skipping adults belongs to breakfast skipping group on a regular basis that warrants concern. Goon and Islam also showed that the prevalence of meal skipping was higher in adult's population. Neumark *et al.* (2007) [5]. Reported that dieting may promote an unfortunate sequence in which behaviors contributing to weight gain (e.g. binge eating) are ultimately adopted after ineffective weight control behaviors (e.g. meal skipping) fail. Several studies support the fact that breakfast contributes to the quality and quantity of a person's daily dietary intake and breakfast skipping has linked to inadequate dietary nutrition. The result of our study supports the hypothesis that meal skipping is more prevalent among overweight and obese adult. NL Keim *et al.* (1997) [2]. Found that regular consumption of breakfast meal may reduce the risk of obesity and other chronic diseases. According to Ma Y *et al.* (2003) [3]. Increased meal frequency was associated with a 45% reduced risk for obesity in adult. Brown *et al.* (2013) [1]. Stated that the association between meal patterns and overweight status was not a result of a single eating pattern but from a combination of eating patterns that are interrelated and cumulative in their effect on overweight status.

Our finding thus underscores the importance of the regular meal pattern as a useful predictor for adult health promoting behavior. The result of this study may be an indication that the high prevalence of meal skipping among adult can be threatening considering its detrimental health effects.

5. Conclusion

On the basis of above results we can conclude that meal skipping is strongly associated with increased risk of obesity. Our finding can provide base line data for taking the imitative to monitor and make people aware regarding the importance of regular meal intake and unhealthy consequences of meal skipping on long term basis.

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