

A Cross Sectional Survey to Determine the Effect of Consuming Regular Breakfast on BMI in Medical Students of Jinnah Medical and Dental College

Effect of
Breakfast
on BMI

1. Fadielah Adnan Sohail 2. Zeba Saeed 3. Bushra Bilal

1. Asstt. Prof. of Medicine, JM&DH, Karachi 2. Asstt. Prof. of Community Health Sciences, JM&DH, Karachi

3. Lecturer of Medicine, Inaya Medical College, Riyadh

ABSTRACT

Objective: The objective of this cross sectional survey was to determine the effect of consuming regular breakfast on BMI in medical students of Jinnah Medical and Dental College.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted among the medical students of Jinnah Medical and Dental College, Karachi, from April 2014 to August 2014.

Materials and methods: The sample comprised of all the students of first to fourth year MBBS students. 374 students actually became the part of our study. The data was collected using a pre tested and pre coded questionnaire. The data was analyzed by using SPSS version 20.0

Results: Our study reveals that 43% (n=161) were the regular breakfast consumers compared to 57% (n=213) who were irregular breakfast eaters. From this regular breakfast consumers 63.2% (n=102) had normal BMI and 36.8% (n=59) had deviant BMI. From this deviant BMI group 64 % (n=38) of the students were underweight and 36 % (n=21) were obese.

Conclusion: The findings of our study support earlier research which suggests that regular breakfast consumption helps to keep our BMI within normal range.

Key Words: Regular Breakfast, BMI, Medical Students

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INTRODUCTION

Human body gets the first nourishment of the day in the form of a wholesome breakfast. It is a healthy habit to have it regularly due to many advantages which are part and parcel of a healthy breakfast. To begin with, it is shown to have positive health benefits with regards to cognitive abilities. Since cognitive, and physical wellbeing along with academic performance are dependent on each other, therefore any variation in one factor may affect the outcomes of other factors. Therefore we can assume that breakfast not only affect the cognitive outcomes of an individual, but may also impact the overall behaviour and psychosocial function of an individual. Those of us who regularly consume breakfast are more likely to have optimal nutrients intake along with fulfillment of most of the daily requirement of micro nutrients. It has been scientifically proven by research that regular breakfast consumers have enhanced academic performance, decreased body

fat and healthier dietary habits, contributing to better mental, physical and social functioning of individuals^{1,2,3,4,5,6,7}. It is not only that breakfast consumption is important but its regularity also plays a very important role in achieving desired health status.

However, there is also a salient feature attached to breakfast consumption that is the particular quality of food which an individual choose to take as breakfast. It has been validated by a number of many such studies that those consumers who take ready to eat cereals, 100% fruit juices, grains and low fat milk had a lower Body Mass Index^{8,9,10}.

Body Mass Index (BMI) is a very useful tool in calculating the level of obesity and figuring out whether someone is simple overweight or obese, as it takes into account the weight and height of an individual. However, it is considered as a preliminary reference as it does not take into account the fact that every person has a different amount of fat deposition within the body which basically means that every person is different with different dietary needs and metabolic tendencies^{5,11}.

A healthy breakfast should be comprised of carbohydrates, proteins, fats, fibre, micro nutrients etc. It is very well known that increase in protein intake also

Correspondence: Zeba Saeed,

Asstt. Prof. of Community Health Sciences, JM&DH, Karachi.

Cell No.: 03158772725

E-mail: zebasaeed437@gmail.com

manifests itself as a good glycemic regulator. In some studies, school breakfast programmes have shown positive cognitive achievements, and the ones who benefited most were the ones who were initially poorly nourished or who consumed less breakfast. This experience of a healthy and regular breakfast in childhood and adolescence provides the child with higher chances of having a normal weight and reduced disability in their adulthood^{1,4,5,10,11,12,13}.

A number of studies indicate that skipping breakfast have a negative impact on health and it also leads to the consumption of more energy dense food at lunch along with more insulin availability at that time. Diet quality reduction with low levels of calcium in men and lower calcium, iron and fiber in women is also noticed in breakfast skippers. It is also recognized in these studies that breakfast skippers poses detrimental health consequences as the act promotes chances of being overweight and experiencing obesity in most of the countries and cultures worldwide^{9,14,15,16,17,18,19,20,21,22}.

Increase in the amount of unusual or uncontrolled fat that damages the health of an individual is identified as being overweight and obese. The basic cause of obesity is the increased intake of energy rich food with decreased intake of fruits and vegetables. Studies have shown that individuals who habitually skip breakfast are more likely to follow a sedentary lifestyle, which may further lead to health problems like hypertension, diabetes, obesity etc. On the other hand decreased physical activity, urbanization and change in society contribute to the development of obesity^{11,14}.

Genetic research has also participated in finding out linkages in the overweight and obesity phenomenon with fruitful results in European and South East Asian Populations. Genes have a positive contribution toward insulin secretion, etiology of obesity, energy metabolism and lipid biology^{23,24,25,26}.

Data published by World Health Organization in January 2015 shows alarming facts which suggest that the number of cases exhibiting obesity has doubled since 1980. In 2014, 1.9 billion adults were overweight and from these 600 million were obese. It is interesting and significant to note that a larger chunk of the population living in those countries where being underweight and malnourished is assumed to be more prevalent, it turns out that obesity and overweight people are more likely to die as a result of it. This shows how the immense magnitude of the problem that this condition poses¹⁴.

It is an acknowledged fact that medical students are more prone to suffer from stress and fatigue due to immense burden of their educational course and this may in turn lead to adaptation of unhealthy life styles. Several studies have pointed out that poor dietary habits and skipping breakfast is a prevalent phenomenon among medical students, which may affect their academic performance and their general wellbeing as a

whole^{27,28}. This study was therefore undertaken to observe the effects of skipping breakfast on the BMI of medical students in a private medical college in Karachi.

MATERIALS AND METHODS

This cross sectional study was conducted among the medical students of Jinnah Medical and Dental College, Karachi. The sample comprised of all the students of first to fourth year MBBS students. The total number of students from first to fourth year came out to be 412, out of which 374 actually responded to our questionnaire. The duration of the study was from April 2014 – August 2014, and the data was collected during the months of May and June 2014.

Despite an extensive literature search, we could not find a uniform definition of 'Regular Breakfast'. Therefore for the purpose of our study, regular breakfast consumers were defined as 'individuals who consume breakfast at least five out of seven days a week'. For this particular study, 'Breakfast' was defined as 'meal eaten in the morning, comprising of health and nutritional food'. This healthy food could be anything, ranging from bread slice, egg, cereal, a cup of milk or paratha. However, a mere cup of tea was not regarded as a healthy breakfast.

For calculating Body Mass Index, the heights and weights of the students were measured subsequently by the data collectors, and the BMI was calculated by using the formula: $BMI = \text{kg/m}^2$.

Ethical consideration was taken into account. Prior consent was obtained from all the students who volunteered to be a part of this study. The students were assured of confidentiality of their information. The data was collected using a pre tested and pre coded questionnaire. The data was analyzed by using SPSS version 20.0

RESULTS

Out of total number of students from first till fourth year that is 412, a sample $n=374$ consented to participate. 43% ($n=161$) were the regular breakfast consumers compared to 57% ($n=213$) who were irregular breakfast eaters. From this regular breakfast consumers 63.2% ($n=102$) had normal BMI and 36.8% ($n=59$) had deviant BMI, from this deviant BMI group 64 % ($n=38$) of the students were underweight and 36 % ($n=21$) were obese.

From the irregular breakfast consumers 33 % ($n=70$) had normal BMI with respect to 67 % ($n=143$) whom BMI was deviant. From this deviant BMI set of students 69 % ($n=99$) were obese and 31 % ($n=44$) were underweight. 65% ($n=243$) of the students skip breakfast because they did not have enough time in the morning. 25% ($n=94$) were not to have breakfast since very young age.

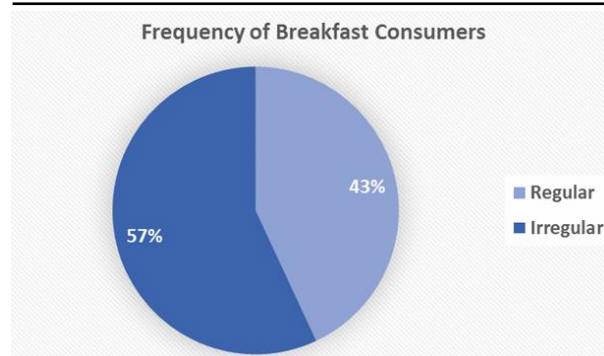


Figure No.1: Frequency of students who consume the breakfast

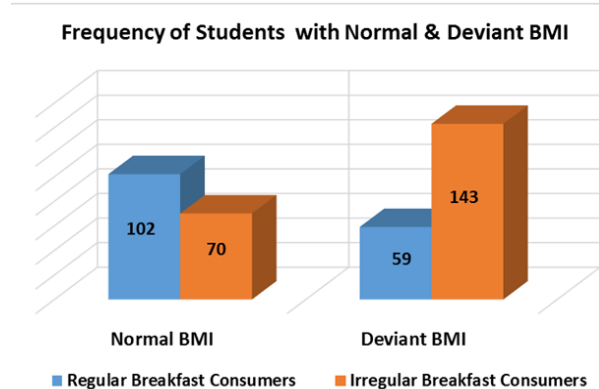


Figure No.2: Frequency of regular and irregular breakfast consumers with their BMI

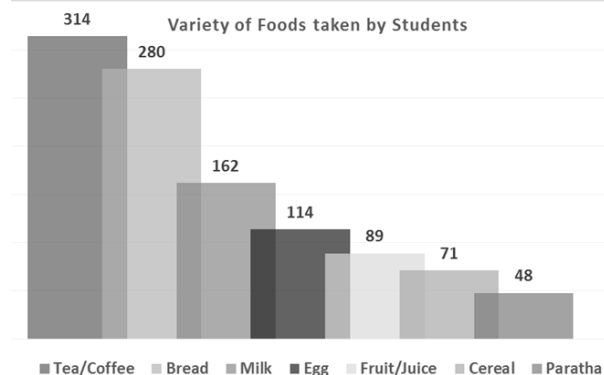


Figure No.3: Frequency of Variety of food consumed as Breakfast by Students

DISCUSSION

Breakfast is usually considered to be the most vital meal of the day, which helps in immediate achievement of optimal energy requirements of the human body¹. However, it is also the mostly skipped meal of the day as well. Its importance cannot be denied especially when it comes to health and development of children and adolescents. The particular way that the regular pattern of breakfast consumption affects human body and influences Body Mass Index (BMI), is still unclear.

Although a number of studies have been conducted to suggest and support a positive relationship between breakfast consumption and its impact on general health and wellbeing^{2,4,5,9}. However, there is lack of data on the appropriate 'healthy' breakfast, therefore a single uniform definition of breakfast is unavailable to standardize research on this topic. This particular study was undertaken to observe the effects of regular breakfast consumption on the BMI of medical students. The results of our study show that 43% (n= 161) of the medical students were regular consumers of breakfast. Of these regular consumers, majority of the students had their BMI within normal ranges. Whereas, only 36.8% (n= 59) had their BMI, which were deviated from the normal BMI range. Interestingly, 64% (n= 38) of such subjects were underweight, while 36% (n=21) were obese. This finding is consistent with certain other studies conducted nationally and internationally^{3,8,9,18,29}. On the other hand, among those students who did not consume breakfast regularly, only 33% (n=70) had normal BMI. Whereas, 67% (n=143) had their BMI deviant from normal BMI range. Of these, 69% (n= 99) were found to be obese and 31% (n= 44) were underweight. Similar results have been observed in a number of other such studies^{2,3,15,16,19}. The possible explanation of this increased BMI in irregular breakfast consumers may be that they tend to over eat at other meals, as the nutritional requirement of the body is not met by skipping breakfast in the morning^{1,9,17,20}. Despite skipping of breakfast, majority of the students were aware that skipping breakfast can have deleterious impact on their physical and mental wellbeing, and may affect their cognitive and learning capabilities.

When the students, who skip breakfast, were enquired about the reasons for not taking breakfast various reasons were mentioned, ranging from non-availability of time to lack of appetite. Majority of the students 65% (n= 243), who skip breakfast replied that they do not get adequate time in the morning to have their breakfast, otherwise they fear of getting late from the college. 25% (n= 94) mentioned that they are not used to of having breakfast in the morning since very young age, and they do not have the appetite for food so early in the morning. These finding are consistent with another study conducted with medical school students in Ghana. Students who were habitual of skipping breakfast also affirmed that since they do not take breakfast at home, so they take something, usually junk food, from the college cafeteria³⁰. This could explain the reason for obesity among those who do not take regular breakfast.

CONCLUSION

The findings of our study support earlier research which suggests that regular breakfast consumption helps to keep our BMI within normal range. In general, regular consumption of breakfast is associated with favourable

health and nutritional outcomes, and skipping breakfast may lead to obesity.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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