

The Importance of Breakfast in Children and Adolescents

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## Abstract

This study looks at children and adolescents eating habits. Specifically it examines breakfast habits on a weekly basis. It is also explored whether or not the respondents believe that breakfast is the most important meal of the day. It was concluded that majority of the respondents agreed that breakfast is an important meal. The body mass index of each respondent is calculated to see if there is a relationship with the number of days they eat breakfast in a week. Surprisingly there were a number who were considered to be overweight or obese. The consequences that each respondent experiences when skipping or consuming breakfast are also explored.

## Introduction

The habit of skipping breakfast has become very popular among children and adolescents. Research has found that breakfast is an important meal because it is beneficial to growth, cognition, and weight. Parents as well as the community are urged to aid in developing better eating habits for children and adolescents. Through experience I can say that it was common for my peers and me to skip breakfast almost on a daily basis. Today I am more aware of what it means to have breakfast, which has encouraged me to change my eating habits. I would like to discover if children and adolescents are aware of the benefits of having a meal in the morning. I also think it is important to see if consuming breakfast means better chances of maintaining a healthy weight. This type of information can potentially improve the health of many.

## Review of Literature

### *The Importance of Breakfast*

Childhood and adolescence is a crucial period that requires adequate nutrition. Breakfast is known as the most important meal of the day, it provides people with fuel to begin their day. As a person sleeps the body changes from the fed to the fasted state which causes the serum glucagon concentrations to elevate. As a result the liver produces glucose by converting glycogen to glucose. This occurs until one fourth of the glycogen stores are depleted. When food is consumed fuel homeostasis is maintained (Hill, 1995). Breakfast also provides adequate nutrient intake which helps the growth and development demands of children and adolescents (Hill, 1995; Rampersaud, Pereira, Adams, & Metzl, 2005). For example, the daily intake of a nutrient such as calcium is higher for those who consume breakfast (Rampersaud et al., 2005). Calcium is especially important for children and adolescents as it is the period when bone calcium accumulation is at its highest.

Although the importance of breakfast has been studied since the 1960's, the habit of skipping breakfast has become very popular among children and adolescents. In a recent study conducted on 612 fourth grade students, a significant amount (27%) reported they skipped breakfast three or more times per week (Gross, Bronner, Welch, Dewberry-Moore, & Paige, 2004). In a different study one in five adolescents were found to skip breakfast (Videon & Manning, 2003).

### *The Effects of Breakfast on Cognition*

Breakfast consumption for children and adolescents can have a positive effect on cognitive performance. Breakfast intake alleviates hunger, which can result in a much more alert

student. It has also been reported that breakfast benefits several aspects of memory function (Gross et al.; Rampersaud et al., 2005). A study with 569 students from the ages of 11 to 13 years found that breakfast consumed 30 minutes before they were tested improved their recall memory function. Breakfast has also contributed to an increase in school attendance and a decrease in tardiness rates (Rampersaud et al., 2005). In comparison to satiated children, hungry children experience things like dizziness, irritability, colds, and ear infections, and are less able to concentrate (Hill, 1995).

### *The Effects of Breakfast on Body Weight*

The majority of breakfast studies have observed that breakfast skippers are more likely to be overweight (Hill, 1995; Rampersaud et al., 2005). This is caused by an increase in snacking and a higher intake of high-fat foods throughout the day. It has also been associated with lower levels of physical activity. A study reported 30% lower odds of being overweight or obese for boys and obese for girls when breakfast was consumed (Rampersaud et al., 2005). During adolescence body image becomes a concern. Girls in particular believe their body weight to be too high which can lead them to skip breakfast as a means of losing weight (Rampersaud et al., 2005; Videon & Manning, 2003). With the struggle of obesity and weight maintenance today, the importance of breakfast should be conveyed.

### *The Role of Parents and the Wider Community*

Parents play an important role in their children's lives. With obesity and diabetes on the rise today, it is especially important that they model healthy eating habits. Eating habits such as consuming breakfast on a daily basis can have a positive impact. A strategy that has been shown to have significant influence on breakfast consumption has been family meals. Having at least

one parent present during evening meals can improve consumption of fruits, vegetables, dairy foods, and decrease the possibility of skipping breakfast (Videon & Manning, 2003). Family meals give parents the opportunity to speak with their children and adolescents about the importance of healthy eating. As children grow into their adolescent years they are slowly acquiring a sense of autonomy, especially when it comes to their choice of food (Radcliffe, Ogden, Coyne, & Craig, 2004). Having a variety of healthy foods to choose from in the home can aid in healthier eating habits. However, while one study explored benefits of autonomy another study found that adolescents who made their own decision about the foods they consumed were more likely to skip breakfast (Videon & Manning, 2003).

For children and adolescents who consume breakfast, parents have less control of their children's choices outside of the home. One study found that of the adolescents who were surveyed, 20% of them purchased their breakfast on their way to school (Radcliffe et al., 2004). The majority of the food that was purchased were energy dense micronutrient-poor (EDMP). This term which is used by the World Health Organization, refers to foods that are high in fat and or sugar. They are also known to be processed foods (Radcliffe et al., 2004). This is why schools and the wider community should promote healthier breakfast choices.

Schools with breakfast programs have reported that their students have had positive effects on mood and hyperactivity (Rampersaud et al., 2005). In contrast, Shemilt and colleagues (2004) found that the breakfast program in several schools they studied had reported to have less well behaved students as a result of the program. There was disruptive behavior such as running and rough play which made it much more difficult for the teachers to have control of the classroom. Because in this particularly study the breakfast program was

implemented as part of the study, it has been suggested that it did not have properly trained staff members to oversee the program which can be a confounding factor.



## Methods

### *The Benitez Study on Breakfast Consumption*

For years, it has been said that breakfast is an important meal of the day; however children and adolescents today seem to be disregarding the idea. This study will investigate the feelings of children and adolescents toward breakfast as well as look at the relationship between breakfast consumption and body mass index (BMI). The BMI will be used to find the nutritional status of each respondent. Calculating the BMI will determine whether the respondents are at a healthy weight, overweight, or obese. The following formula is used for the calculation:

$(\text{weight in lbs} \times 703) / (\text{height in inches})^2$ .

### *Operationalization of Variables*

For this study the demographic variables that I will be looking at are age, sex, and education. I am also interested in finding out what the subjects eating habits are like, and to do this I will ask them how many times per week they eat breakfast. I will further ask about their feelings on the statement that breakfast is the most important meal of the day. I will compare this research to others by investigating the relationship between breakfast consumption and BMI. I will calculate their body mass index by asking for height and weight. The BMI of a person is used today to help determine their weight status. Lastly, I will ask the subjects to explain in as much detail as possible how they feel mentally and physically on a day they have skipped breakfast. If a subject never skips breakfast I will ask how consuming breakfast makes them feel.

### *Sample Selection*

This study will use a convenience sample collected by asking my friends and family

members who are in elementary, middle, or high school.

### *Analysis*

Qualitative and quantitative analysis will be used. A crosstabulation will be used to determine a relationship between sex and the agreement with the statement that breakfast is the most important meal of the day. Calculation of a Chi square will be used to see if there is a relationship between sex and education level. A t-test will be used to determine if there is statistical difference between sex and the average number of days per week that the respondents consume breakfast. There will also be correlations conducted of age by whether or not the respondents agree with the statement that breakfast is the most important meal of the day, as well as the average number of days per week that breakfast is consumed by BMI. Finally, a qualitative analysis will be done to explore the consequences of skipping or having breakfast.

## Have You Had Your Breakfast?

This is an anonymous and confidential survey designed to investigate breakfast consumption.

Please mark or fill in the appropriate response

1. Age \_\_\_\_\_
2. Sex  
☐ male      ☐ female
3. School Level  
☐ elementary school      ☐ middle school      ☐ high school
4. On average, how many days per week do you eat breakfast?  
☐ 0      ☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5      ☐ 6      ☐ 7
5. How much do you agree that breakfast is the most important meal of the day?  
☐ strongly agree      ☐ agree      ☐ disagree      ☐ strongly disagree
6. How much do you weigh? \_\_\_\_\_
7. What is your height? \_\_\_\_\_
8. In as much detail as possible, please explain how you feel mentally and physically on a day you have skipped breakfast. If you never skip breakfast please explain how eating breakfast makes you feel mentally and physically. Please feel free to write on the back.

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Thank you for your time.

## Results

### *Univariate Demographic Analyses*

The convenience sample had slightly more females (53.3%) than males (46.7%) (see Table 1). All of the subjects are in between the ages of 7 and 17 with a mean age of 13.2 years. The majority of the respondents are currently attending high school (53.3%) while the others attend elementary school (26.7%) and middle school (20%).

Table 1. Univariate Analysis of Demographic Variables N=15.

	N	%
Sex		
Male	7	46.7
Female	8	53.3
Age (mean in years)		13.2
Education Level		
Elementary school	4	26.7
Middle School	3	20.0
High School	8	53.3

### *Univariate Research Analyses*

The respondents were asked to give an average of the days per week they consume breakfast. The results showed that the mean number of days per week they have breakfast was 4.5 days (see Table 2). They were then asked how much they agreed with the statement that breakfast is the most important meal of the day, and it was found that the majority of the respondents agreed with the statement. A mean of 3 was calculated on a four point scale, where

1=strongly disagree and 4=strongly agree. Each of the respondent's body mass index was calculated (BMI) using their weight and height. The majority (46.7%) had a normal BMI falling in between 18.5-24.9, while some were underweight (13.3%) with a BMI of less than 18.5. Considering there were only 15 respondents there were was a large number (40%) who were considered to be overweight or even obese with 20% being overweight and 20% being obese. Overall the sample had a mean of 23 for their BMI.

Table 2. Univariate Analysis of Research Variables, N=15.

	Mean
Average Number of Days Per Week that Breakfast is Consumed	4.5
Agree that Breakfast is the Most Important Meal of the Day	3.0
Body Mass Index	23.0

### *Bivariate Analyses*

A crosstabulation of sex and the agreement that breakfast is the most important meal of the day was completed and it showed that 60% of those who strongly agreed were females. It also showed that 57% of those who agreed with the statement were males. This shows that the majority of the respondents either strongly agreed or agreed with the statement.

A Chi square was calculated using sex and education level and a value of 3.951 was obtained. At two degrees of freedom (df) the critical value was 5.991, this shows that the results were not statistically significant. I concluded that the distribution of sex and education level

occurred by chance and that there is no relationship between the two variables.

A t-test was conducted to determine if there is a statistical difference between sex and the average number of days per week that the respondents consume breakfast. A t-value of 0.263 was obtained, at thirteen degrees of freedom, with a critical value of 2.160 at an alpha level of  $<.05$ . Therefore, because the value was less than the critical value the result was not significant. I concluded that males and females did not differ statistically in the average amount of days per week they consumed breakfast.

A correlation of age by whether or not the respondents agree with the statement that breakfast is the most important meal of the day was conducted. A value of -0.101 was acquired, at thirteen degrees of freedom with a critical value of 0.514. The result is not significant as it is apparent that the value is less than the critical value, there is no correlation between age and the agreement.

Another correlation was conducted using the average number of days per week that breakfast is consumed by BMI. A value of 0.173 was obtained, at thirteen degrees of freedom with a critical value of 0.514, which indicates that the result is not significant. As it is demonstrated in Figure 1, the value denotes there is no correlation between number of days that breakfast is consumed in a week and BMI.

### *Qualitative Analysis*

The respondents were asked a qualitative question about how they feel mentally and physically on a day they skip breakfast, and if they never skip breakfast I asked to explain how eating breakfast makes them feel. The majority of the respondents explained how they feel physically and mentally on a day they skip breakfast. Many complained of things like headaches

and stomachaches. They also explained that as the day progresses they feel tired and weak. A common consequence of no breakfast among the respondents was the inability to concentrate in school. Many feel distracted because of how they feel physically. On the contrary, some respondents described how they feel mentally and physically on a day they eat breakfast. They explained how having a meal in the morning makes them feel good and alert. One particular respondent said, “a good breakfast helps me think well while I’m in class, I get better grades on my report card and I am well educated all day long.”

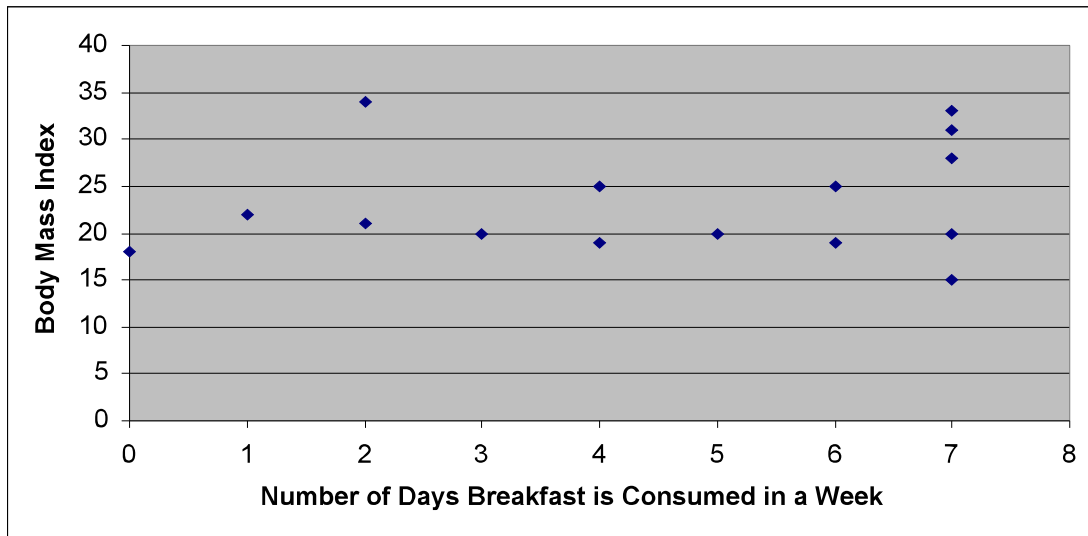


Figure 1. Correlation of Number of Days Breakfast is Consumed in a Week by Body Mass Index, N=15.

## Conclusions

Based on my findings, this research suggest that although children and adolescents seem to be aware of the importance of breakfast there is still only an average of 4.5 days per week that breakfast is actually consumed. Because there were only 15 subjects it is hard to say if this is an actual trend among children and adolescents, however it has been shown in other studies that a significant amount of students reported to skip breakfast three or more times per week (Gross, Bronner, Welch, Dewberry-Moore, & Paige, 2004).

After a crosstabulation was calculated, I concluded that the majority of the respondents agreed that breakfast is the most important meal of the day. I think that in the last few years the message of leading a healthier lifestyle has really been conveyed, and when it comes to the importance of having a meal in the morning children and adolescents are especially targeted by school officials. So if they are aware of the importance of breakfast why is skipping breakfast such a popular habit? I think that there are other factors that are contributing to this trend. For example living in a low-income household might determine whether a child has breakfast or not. It is imperative that we find what these factors are so we have a better understanding and maybe even decrease the incidence of skipping breakfast. One thing that I think we also have to remember is that children and adolescents are easily influenced, so we have to wonder if they really actually understand the importance of a meal in the morning.

After conducting a Chi square of sex by education, I concluded that there was no relationship between them. Because such a small sample size was used a result that was not significant was expected. I think that the demographic variable of education can be used to determine if education is related with the incidence of skipping breakfast.



The result of the t-test showed that there is no statistical difference between males and females and the amount of days they consume breakfast. I find this surprising because females are known to skip breakfast more often than males, as it is used as a means of losing weight (Rampersaud et al., 2005; Videon & Manning, 2003). I think that a larger sample would show that females tend to skip breakfast more often than males.

There were two correlations conducted in this research. In the first one I concluded that there was no significant correlation between age and whether or not they agree that breakfast is the most important meal of the day. Overall most of the respondents agreed with the statement regardless of their age. In the second correlation I concluded that there was no significant correlation between the number of days that breakfast is consumed and BMI. I expected to see that as the number of days breakfast is consumed increases, the BMI decreases. It has been said that consuming breakfast results in lower odds of being overweight or obese (Rampersaud et al., 2005). As I mentioned earlier I think that having such a small sample size may have contributed to such a different result.

Overall through this research I found that children and adolescents seem to be aware of the importance of breakfast, however their eating habits still need improvement. Although they are aware, I don't think that they know the extent of the damage that can be done if breakfast is constantly skipped. I also think that there are other factors that are contributing to them skipping breakfast. Even though a small sample was used, I still managed to find 40% to be overweight or obese which I think really shows how children and adolescents are having weight issues today. I think that many are unaware of the idea that eating breakfast can lead to a healthier weight and having further research on this topic I think that can help many.

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