

SHORT ARTICLE

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Shape your breakfast: Breakfast skipping as a risk correlate of Obesity among school children in ChennaiSowmiya KR^{1*}, Arun G²

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***Author for correspondence:** Dr.Sowmiya KR, M.D., Associate professor, Department of community medicine, Tagore medical college and hospital, Chennai. E-mail: krs3012@gmail.com**Abstract**

Introduction: Breakfast is the first and the most important meal for us. But unfortunately we tend to take it lightly or skip it to our convenience. The younger generation often finds skipping breakfast as a method to lose their body weight unknowing the fact that it leads to deleterious effects. Hence this study was taken up to assess breakfast skipping as a risk to overweight and obesity among school children in Chennai, India. **Methods:** this cross sectional study was done among 300 school children in the age group of 15-17 years studying in a higher secondary school in Chennai. Their BMI was recorded and their awareness regarding the effects of skipping breakfast was assessed. **Results:** Among the 300 study participants, 163(54.3%) were males and 137(45.7) were females. The mean age was 15.9±0.45 years. 64.3% of the students were normal weight while 22.67% were overweight and rest 13% was obese. Overweight and obesity was more among breakfast skippers and was statistically significant (p<0.05). Only 26.6% and 32.6% of the study participants were aware of the fact that skipping breakfast will lead to obesity and hormonal imbalance respectively.

Key-words: diet, school children, obesity, overweight, India**INTRODUCTION:**

Breakfast is the first meal taken after rising from a night's sleep, most often eaten in the early morning before undertaking the day's work. The Old English word for dinner, *disner*, means to break a fast, and was the first meal eaten in the day until its meaning shifted in the mid-13th century. It was not until the 15th century that "breakfast" came into use in written English to describe a morning meal, which literally means to break the fasting period of the prior night; in Old English the term was *morgenmete* meaning "morning meal."

Breakfast is the first meal of the day. Breakfast contributes a huge amount of energy daily. Many people tend to skip their first meal of the day due to many variable reasons. Some people skip their breakfast intentionally and some skip their breakfast due to lack of time. Also many people are unaware of the circumstances that arise due to skipping of breakfast.

Students are the main group of population who skip their breakfast frequently. The adverse effects of skipping breakfast are too dangerous. Major adverse effect is hormonal imbalance. Many hormones (like Growth hormone, Glucagon, Thyroxine, Ghrelin) tend to increase

their secretions which lead to obesity (1), hypertension, Diabetes Type II (2), Chronic stress (3).

Hormonal Actions:

Ghrelin:

- Promotes Growth hormone
- Increase appetite and food intake by stimulating feeding centre in Hypothalamus (4) Glucagon:
- Increase blood glucose level (5)

Growth hormone:

- Increase Fatty acids utilization
- Increased Free Fatty Acids in blood which produce energy
- Reaping of higher quantity of free fatty acids from adipose tissue leads to accumulation of fat in liver which leads to Fatty Liver.

Thyroxine:

- Increased Free Fatty Acid increases Free Fatty Acids in blood which produces energy
- Increased Free Fatty Acid which leads to Fatty Liver.

Glucocorticoids:

- Enhances the breakdown of protein in extrahepatic cells (Muscle) which release Amino acid in circulation.
- From Amino acid energy is produced.

By skipping breakfast frequently, hormonal fluctuations happen which damages major vital organs like Brain, Heart, Liver and Kidney (6).

OBJECTIVE:

1. To find out the association between skipping breakfast and body mass index (BMI) among higher secondary school students in Chennai
2. To assess the awareness among the students about the health effects of skipping breakfast.

METHODOLOGY

This cross-sectional study was undertaken amongst higher secondary schooling students aged between 15 to 17 years in Chennai , during april to july 2017. By simple random sampling method one higher secondary school in Chennai was selected for the study. Students of both the sexes belonging to higher secondary class were included in the study. Students who were not available even after 3 visits were excluded.

SAMPLE SIZE AND SAMPLING TECHNIQUE:: By simple random sampling method the students will be placed into 2 groups- those who skip breakfast and those who don't till the number 150 is reached in each of the groups with the total sample size of 300.

VARIABLES ASSESSED:

Breakfast skipping: We assessed breakfast skipping based on the response to a single assessment question “How many days in a week (on average) do you skip breakfast?” with response of more than 3 days on an average taken as skipping breakfast.

BMI= weight in kg/ height in meters square

The BMI was appropriated for age, gender, and height by calculating percentile ranking according to WHO adolescent anthropomorphic standards. For participants aged 15–17 years, we defined overweight as ≥85th percentile, and obesity as ≥95th percentile, as recommended by the WHO Expert Committee on Physical Status (6).

Awareness regarding health effects of skipping breakfast.

TOOLS USED: Pre tested structured close ended questionnaire which will assess on the following sub headings:

- General Demographic details
- Breakfast habit- takes/ skips
- Awareness regarding the health effects of skipping breakfast
- BMI

DATA ANALYSIS:: Statistical analysis was done in IBM SPSS 21.0 version. BMI is given in mean with standard deviation. Also the range and percentiles calculated. The association between skipping breakfast and BMI will be found out by chi square test. P value of <0.05 taken as significant.

RESULT

Among the 300 study participants, 163(54.3%) were males and 137(45.7) were females. The mean age was 15.9±0.45. Only 26.6% and 32.6% of the study participants were aware of the fact that skipping breakfast will lead to obesity and hormonal imbalance respectively. The awareness regarding the consequence of skipping breakfast is given in figure 1.

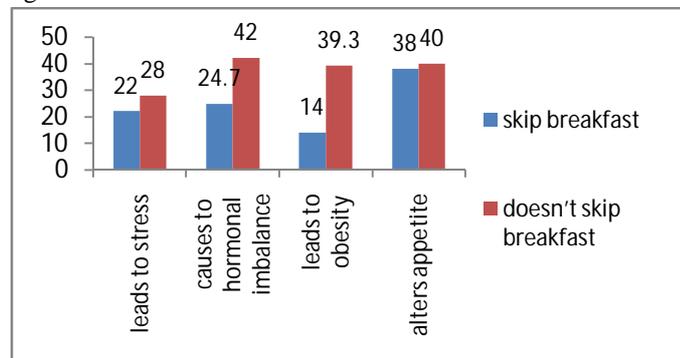


Figure 1: awareness regarding the effects of skipping breakfast

Upon calculating the students BMI, it was found that 64.3% of the students were normal while 22.67% were overweighting and rest 13% was obese. Overweight and obesity was more among breast skippers and was statistically significant (p<0.05) (table 1).

Table: 1 Breakfast pattern and its relationship to Overweight and Obesity

Breakfast pattern	Normal (%)	Overweight (%)	Obese (%)	P value
Skip N=150	82 (54.6)	39 (26)	30(20)	0.034*
Never skip N=150	111(74)	27(18)	9(6)	

*p<0.05

DISCUSSION

In this study 22.7% were overweight and 13% were obese, which is similar to the studies done in Delhi and Tamilnadu. (7,8) However, the National Nutrition Monitoring Bureau surveys done in rural areas of India in 2002 reported the prevalence of as little as 0.6%. (9) studies done abroad at Malaysia, Egypt and Pakistan shows prevalence of overweight and obesity to be on the higher side than our study results.(10-13) Prevalence of overweight individuals and obesity in the study could be because of imbalance in the diet.

Females are prone to skip breakfast than the males as seen in the present study as well as studies conducted abroad. (1,2) 36.7% of the students had skipped breakfast to lose their body weight which is similar to the study done in Hongkong. (14) Skipping breakfast is correlated with obesity (by physical measurement). Nearly 20% of the students who skip breakfast were obese. People who skip three days in a week were tend to be overweight. In

conclusion, overweight and obesity was strongly associated with skipping breakfast. Hence it is imperative to impart nutrition education to the school children regarding the importance of regular breakfast to produce a future healthy India.

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