

## THE CORRELATION OF BREAKFAST ON ADOLESCENTS' NUTRITIONAL HEALTH

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### ABSTRACT

A comparative study on Impact of breakfast among adolescents of Bengaluru urban examines the consumption pattern, knowledge about the importance of breakfast, dietary pattern and mental health. It aims to assess the relationship between the breakfast consumption and nutritional status among the selected respondents to assess the nutritional awareness. The study was conducted among 100 adolescents who were likely to respond and aged between 11-16 years. A pretested questionnaire was used to collect the information. Additional general information about their name, age, gender, height, weight, type of family, school attendance etc. were collected. Statistical analyses like percentage, chi square test, mean and standard deviation was employed to analyse the data. In conclusion, this thesis underscores the substantial influence of breakfast habits on adolescent well-being. Through a comprehensive comparative study involving 50 girls and 50 boys, it became evident that boys who maintained a regular breakfast routine exhibited a superior understanding compared to their female counterparts. Interestingly, despite a general awareness of the importance of breakfast, a notable trend among girls was the tendency to skip this crucial meal as a means to manage weight. This finding raises important questions about the intersection of dietary choices, body image, and overall health among adolescent girls. In the end the adolescents were counselled about breakfast habits.

## INTRODUCTION

Breakfast is the first meal of the day usually eaten in the morning. Breakfast is important particularly for school going child and adolescent. It breaks the fast of the sleep hours and prepares a child for problem solving and memory spans in the learning period at school. Children who skip breakfast do not make up for nutrients and energy deficits later in the day and tend to perform more poorly on tests of cognition than those who eat breakfast.

Not only having breakfast, but type of breakfast an individual consume is also an important factor for meeting nutrient targets. Breakfast including complex carbohydrates and balanced number of proteins and lipids modulates the ghrelin secretion and ultimately helps in reducing the feeling of hunger. Daily consumption of breakfast is associated with high intake of fibre, calcium, vitamins, and minerals. Consumption of breakfast acts as a contributor for all the risk factors of chronic diseases by affecting, both directly and indirectly, the broad composition of the diet (*Williams.et.al., 2009*).

According to scientific research, eating a nutritious breakfast is associated with higher daily nutrient intake, better adherence to dietary guidelines, and higher-quality overall diet. In both children and adults, it is linked to improved body weight control and good cardiometabolic risk factors. Improvements in attention and cognitive performance across all age groups have also been linked to breakfast. (*Ana lopez- Sobaler.et.al., 2018*).

Breakfast is the most important meal of a day. The macronutrient profile and the micronutrient intake are better in those who consume breakfast regularly compared to breakfast skippers. Breakfast is particularly important for students. Positron Emission Tomography studies show that the metabolic glucose demand of human brain is almost twice in the growing years when compared to adults. The average cerebral oxygen utilization and cerebral blood flow in these age groups are also higher compared to adults. Students also have higher sleep demands and hence suffer greater depletion of glycogen stores overnight. Hence, a proper breakfast in the morning is vital to meet the metabolic and the glycaemic needs of brain.

Skipping breakfast either leads to an increase in energy intake or a reduction in energy expenditure over the remainder of the day, resulting in a state of positive energy balance. Skipping breakfast may result in decreased performance during the day for endurance exercises and free-living physical activity. Skipping breakfast may have a greater impact on energy expenditure than on consumption. (*David Clayton.et.al., 2016*). However, studies have shown a growing tendency to skip breakfast, particularly among adolescents. The omission of this meal has been associated with a nutritionally unbalanced diet and unhealthy eating patterns, changes in metabolism and hormone secretion due to the long period of fasting and reduced postprandial energy expenditure, which can lead to health problems. As a result, teenagers are more vulnerable to weight gain and its aftereffects, which can also affect this disease as an adult. The prevalence of overweight among adolescents has increased and has become one of the main public health concerns, since this condition impairs health and quality of life at this stage and later puts people at risk for early death and chronic noncommunicable illnesses. (*Paul Rogerio Melo Rodrigues.et.al., 2023*).

There is a correlation between breakfast eating and academic achievement and performance in school. An Australian study found that breakfast skipping among 8–9-year-old children was associated with poorer academic outcomes as reported by teachers 2 years later as well as literacy and numeracy outcomes. A study in the Netherlands found that among students 11–18 year of age, skipping breakfast on any school day was associated with the poorer end of term grades. Eating breakfast was found to have a positive effect on certain aspects of cognitive function measured (such as attention, executive function, and memory) within 4 hours post- breakfast, compared with skipping breakfast, according to a systematic review on the effect of breakfast consumption on cognitive outcomes in children and adolescents. The scientists also found that children who were malnourished benefited the most from breakfast consumption, suggesting that, in some situations, lowering the incidence of breakfast skipping could have a significant positive impact on the most vulnerable children. have neglected to take into consideration the possibility of socioeconomic confounding. (*Lisa Smithers.et.al., 2021*).

The nutritional profiles of children who reported consistently eating breakfast were generally better than those of their classmates who skipped breakfast. While not all research linked skipping breakfast to obesity, breakfast eaters were generally related with higher daily calorie intake and lower risk of being overweight. Research indicates that eating breakfast may enhance cognitive performance in areas such as memory, test scores, and attendance at school. Children's health and wellbeing can be positively impacted by eating breakfast as part of a healthy diet and lifestyle. It should be encouraged by parents to give their kids breakfast or to see whether their school offers a morning programmed. We advocate consumption of a healthful breakfast daily consisting of a variety of foods, especially high-fibre and nutrient-rich whole grains, fruits, and dairy products. (*Gail Rampersaud.et.al., 2005*).

We focus on skipping breakfast as a risk factor for prediabetes in adolescence because it is prevalent among adolescents, for example, 8.0% in junior high school in Japan. Previous studies have suggested robust biological mechanisms in the association between skipping breakfast and prediabetes. Skipping breakfast could affect glucose metabolism by elevating free fatty acid level and disrupting circadian rhythms. Furthermore, skipping breakfast can be associated with increased appetite and poor diet. Furthermore, missing breakfast may result in less morning exercise. Missing breakfast was linked to higher fasting glucose levels in children (ages 6 to 17) according to a few cross-sectional studies. Studies on teenagers in Asian populations that are population-based are, nevertheless, scarce.

Considering the biological mechanisms of obesity raises the risk of glucose intolerance and insulin resistance, the impact of skipping breakfast on glucose metabolism may be much greater in these children. If a person is not obese, missing breakfast can lower their day energy intake. On the other hand, missing breakfast may cause an increase in calorie consumption during the second part of the day without a decrease in total energy intake in obese individuals. Put differently, the relationship between the risk of diabetes and skipping breakfast may be influenced by obesity. Furthermore, studies have shown that Asians are more prone than Whites to gain visceral fat even at the same BMI and to get diabetes even in cases of mild obesity. Therefore, it is also essential to evaluate the possibility that children with overweight may be a high-risk group. (*Aya isumi.et.al., 2023*).

Epidemiological studies indicate that skipping breakfast as a universal behaviour, may have adverse effects on cardiovascular diseases [CVDs] and metabolic diseases. Regular breakfast consumption, however, may boost fullness and reduce overeating later in the day, which helps people avoid gaining weight. According to recent research, missing breakfast raises the risk of cardiovascular death, obesity, metabolic syndrome, hypertension, hypercholesterolemia, type 2 diabetes mellitus (T2DM), coronary artery disease (CAD), and all-cause mortality. Nonetheless, numerous studies have also shown that eating breakfast regularly lowers the incidence of T2DM, CVDs, and all-cause mortality. Strong breakfast consumption, especially when consuming a western diet, has been linked to an increased risk of sudden cardiac death and cardiovascular diseases' circadian rhythm. It appears that those who skip breakfast are more likely to consume refined and sweetened foods later in the evening, which increases their risk of developing type 2 diabetes and cardiovascular diseases. Eating at night and skipping breakfast may be linked to a circadian clock misalignment in the central and peripheral nervous systems, which can cause inflammation and oxidative stress. Elevated systemic inflammation causes harm to neurons, endothelial cells, smooth muscle cells, adipocytes, and pancreatic beta cells. This damage can lead to malfunction in these cells and associated illnesses. Breakfast's health benefits might also stem, at least in part, from the nutrient-dense foods consumed rather than the timing of the meal. Regular breakfast consumption, especially one high in Indo- Mediterranean foods like fruits, vegetables, whole grains, nuts, and spices, may protect against the morning's circadian surge in oxidative stress, which would otherwise significantly raise the risk of T2DM and CVDs. (*Ram Bahadur Singh.et.al., 2022*).

Breakfast is frequently referred to as the most important meal of the day. It has been linked in recent years to weight control, cardio-metabolic risk factors, and cognitive function; nevertheless, the specific health advantages of breakfast are still unclear based on the available research. Numerous studies that have examined the daily food and nutrient intakes of breakfast eaters and skippers have been conducted, and there are numerous reports detailing the contributions of breakfast to overall dietary intakes. The definitions of breakfast and breakfast skippers, as well as the approaches taken to connect morning nutrient intakes to the quality of an individual's diet, differ significantly, though. Using national dietary survey data from Canada, Denmark, France, Spain, the UK, and the USA, The International Breakfast Research Initiative offers an innovative and harmonized method to the research of the nutritional impact of breakfast. It is expected that the project's main objective of investigating methods for determining ideal morning food and nutrient intakes will be accomplished through the analysis of such data along agreed lines. Food producers and public health nutrition policymakers will find value in this data, which will also enable consistent messaging to encourage consumers to make the best possible breakfast choices. (*Gibney, Michael. et.al., 2018*).

## **METHODOLOGY**

The study of impact of breakfast on adolescents' nutritional health was carried out with the objective to assess the relationship between the breakfast consumption and Nutritional Status among the selected respondents. The study was conducted in Holy Christ school Jayanagar Bangalore. In this study, 100 adolescents were selected as the population of the Study. A pre- tested questionnaire was given to all the adolescents to evaluate their knowledge and awareness about importance of breakfast as well as to assess their breakfast pattern and associated aspects like their behaviour, nutritional status and school performance. Other details of the materials and methods utilized in this study are discussed under the subsequent sections:

- 1.1 Area of the Study**
- 1.2 Design of the Study**
- 1.3 Population of the Study**
- 1.4 Sample Size**
- 1.5 Sampling Technique**
- 1.6 Tools and Techniques of the Study**
- 1.7 Pre-testing of the Schedule**
- 1.8 Data Collection methods**
- 1.9 Statistical Analysis**
- 1.10 Nutritional Education Program**
- 1.11 Plates**

## Research Design

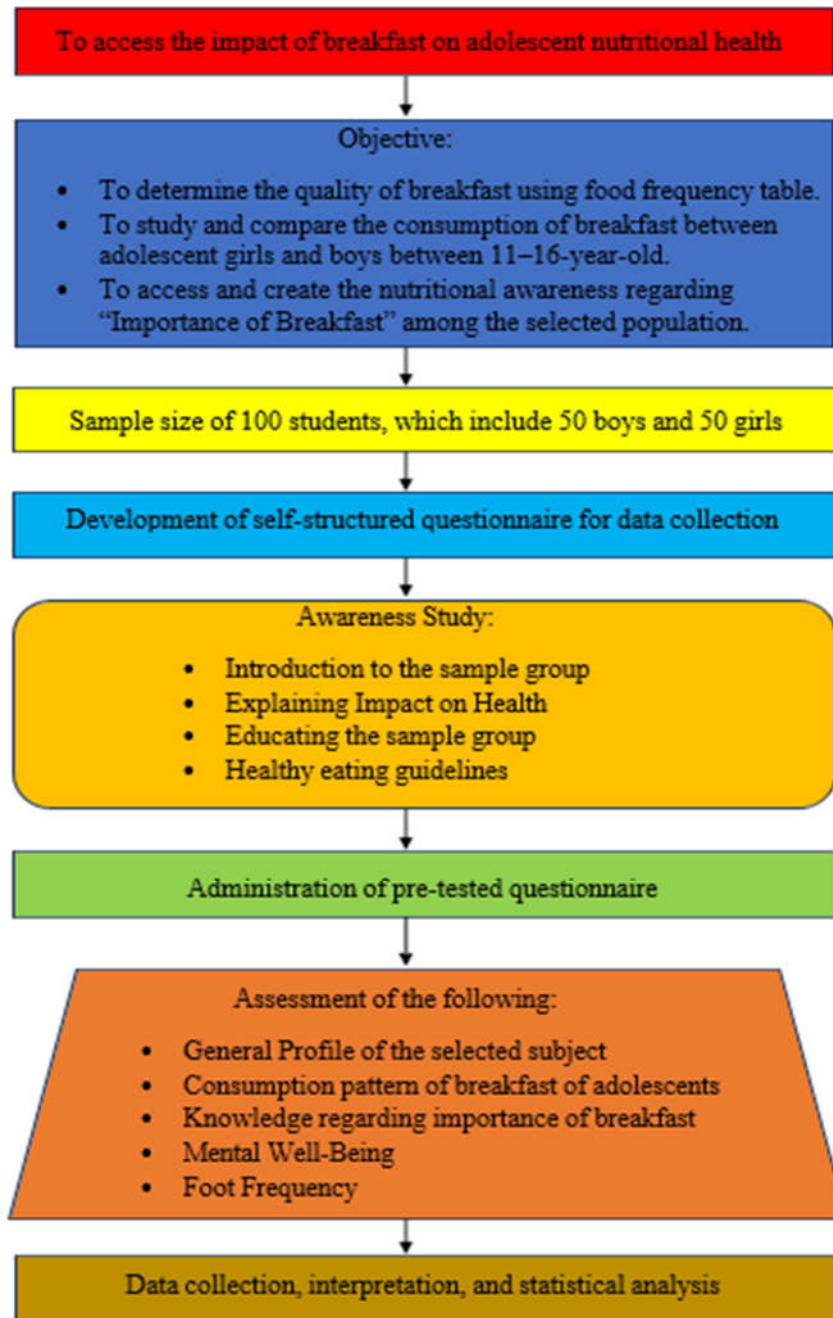


Fig. 3.1 Research Design

To access the impact of breakfast on adolescent nutritional health

### Objective:

- To determine the quality of breakfast using food frequency table.
- To study and compare the consumption of breakfast between adolescent girls and boys between 11–16-year-old.
- To access and create the nutritional awareness regarding “Importance of Breakfast” among the selected population.

Sample size of 100 students, which include 50 boys and 50 girls

Development of self-structured questionnaire for data collection

### Awareness Study:

- Introduction to the sample group
- Explaining Impact on Health
- Educating the sample group
- Healthy eating guidelines

### **Assessment of the following:**

- General Profile of the selected subject
- Consumption pattern of breakfast of adolescents
- Knowledge regarding importance of breakfast
- Mental Well-Being
- Food Frequency

Data collection, interpretation, and statistical analysis

### **3.1 Area of the Study**

The area of study is the specific field or subject that is the focus of the research. It defines the scope and boundaries of the research project, indicating the specific area that will be explored and investigated. This research was conducted in Holy Christ school Jayanagar Bangalore and adolescents of this area were selected as respondents of the study.

### **3.2 Design of the Study**

The design of the study refers to the plan or strategy that outlines how research will be conducted. It includes a set of procedures or methods that will be used to gather and analyses data to address the research questions or objectives. A cross-sectional study using quantitative method (pre-defined questions formatted in standardized questionnaires) that will provide access to quantitative and qualitative information.

### **3.3 Population of the Study**

The "**Population of Study**" refers to the specific group of individuals or elements that the researcher intends to study and draw conclusions from. It represents the larger target group or population to which the research findings will be generalized. The population selected for the study was Adolescent aged between 11-16 Years.

### **3.4 Sample Size**

Sample size refers to the number of individuals or observations included in a research study or survey. It represents the portion of the population that is selected and analysed to draw conclusions about the entire population. The sample size is an essential consideration in research as it affects the reliability and generalizability of the findings. A total number of 100 respondents were selected based on Purposive Random Sampling.

### **3.5 Sampling Technique**

Purposive Random Sampling was applied to selected the respondents from the area of the study which is Holy Christ school, Jayanagar, Bangalore All the selected samples were identified from the private schools of the area of the study.

### **3.6 Tools and Techniques of the Study**

#### **General Information of the Respondents**

General information of the respondents was asked and recorded through pre-tested questionnaire in the criteria like- Name, Age, Gender, Type of family, School Attendance, Education Qualification etc.

#### **Assessment of Consumption Pattern of Breakfast**

A consumption pattern of breakfast assessment questionnaire i utilized as means to evaluate an individual's frequency of consumption of breakfast. It typically comprises a set of questions designed to measure frequency of consumption of breakfast, foods included in Breakfast, place of consuming breakfast (home/hostel, cafeteria in college, food stall/ fast food corners), with whom they having breakfast, timings of having.

#### **Assessment of Knowledge Regarding Importance of Breakfast**

A knowledge assessment questionnaire is utilized to evaluate an individual's comprehension and competence in a specific subject or field of knowledge. It typically comprises a set of questions designed to measure the person's understanding, skills, and capabilities pertaining to the subject matter.

#### **Food Frequency Questionnaire**

Food frequency questionnaire (FFQ) is a dietary assessment tool delivered as a questionnaire to estimate frequency about food and beverage consumption over a specified period. The number of food groups can vary from 5 to 12, with some common food groups including:

- Cereals
- Pulses
- Milk and Milk Products

- Eggs
- Green Leafy Vegetables
- Roots and Tubers
- Oher
- Vegetables
- Fruits
- Fats and oils
- Sugars and sweets
- Dry Fruits and Nuts

The results of these questionnaires can provide valuable information on the dietary habits and nutritional status of Adolescent, which can then inform public health and nutrition interventions.

### **Assessment of Mental Well Being**

A mental well-being assessment questionnaire is utilized to evaluate an individual's mental status in relationship with breakfast consumption pattern. It typically comprises a set of questions designed to measure the person's ability to concentrate, communication skills, physical activity, person's mood like irritated, anxious; social life.

### **3.7 Pre-testing of the Schedule**

The schedule was pre-tested with the 10 respondents who were not involved in the actual study and this testing was done prior to the study to check the validity and appropriateness of the schedule regarding proposed objectives and expected outcomes of the study. Necessary correction was incorporated in the schedule after the pre testing of the schedule

### **3.8 Data Collection Methods**

Questionnaire method was utilized for collecting the data from the respondents of the study. The questionnaire method can be tailored to a specific research topic to ensure that it is an effective way to collect relevant data. For a research study on the importance of breakfast in relation to cognition among adolescents, the questionnaire should include questions that assess:

- **Breakfast Habits-** Participants was asked about their usual breakfast habits, including the type of food they consume, the time they eat breakfast, and the frequency of breakfast consumption.
- **Cognitive Function-** Participants was asked about their Academic Performance and any perceived changes in their cognitive function, such as attention and memory, before and after eating breakfast.
- **Attitudes towards Breakfast-** Participants were asked about their attitudes towards breakfast, including the perceived importance of eating breakfast and any barriers to eating breakfast.
- **Demographic Information-** Demographic information, such as age, gender, socioeconomic status, and school attendance, was collected to control for any potential confounding variables.

The questions were clear, concise, and easy to understand for the target population and the response options should be relevant and appropriate. Pilot testing the questionnaire with a small sample of the target population is recommended to identify any potential issues with clarity, relevance, or response options.

### **3.9 Statistical Analysis**

The statistical analysis of the obtained data was done using SPSS software and with the following statistical methods. Percentage was used for making the simple comparisons. For calculating percentage, frequency of cell was multiplied by 100 and divided by the total number of observations or respondents in that category to which a cell belonged. Chi square test is primarily used for testing the agreement of the observation observed frequencies with those expected upon a given hypothesis as for instance, in comparing an observed frequency distribution with a theoretical one like the normal for carrying out this test we calculated from the data of the quantity.

### **3.10 Nutritional Education Program**

It was a thrilling experience to put forth a presentation in front of a useful audience. The prospect of sharing valuable information and potentially making a positive impact on habits and lifestyles was truly invigorating. Especially as, the significance of information was to be shared with the adolescents present who were not well versed in healthy nutritional habits.

It was a challenging experience to present to the adolescent, it was inherently unpredictable and as well as their response to it. The challenge lay in capturing and maintaining their attention while effectively conveying the importance of breakfast. This uncertainty added an element of anxiety to the experience.

Some personal anecdotes and stories were in common in the presentation which strongly lead to the connection with the children. Finding common ground and making the information relatable fostered a positive atmosphere in the room. Witnessing the students actively participating in the activities, asking questions, and expressing interest in the topic brought a deep sense of satisfaction. It was fulfilling to deliver valuable information that could potentially influence their health choices.

However, keeping the presentation engaging and age-appropriate for 11-16-year-olds presented a noteworthy challenge. Adapting the content and adjusting my communication style to resonate with their interests and concerns required creative thinking and flexibility. Encouraging positive habits at this crucial age was essential, as it could significantly contribute to their well-being in the long run.

During the Q&A session when the questions were posed the students actively engaged in discussions and their curiosity about their own perspectives, concerns, and experiences became evident. Understanding their viewpoint not only enriched the presentation but also strengthened the connection between us.

In summary, the experience of giving a presentation to 11-16-year-olds involved a dynamic mix of emotions, encompassing both the challenges and rewards of connecting with a diverse and energetic audience.

## 2. RESULTS AND DISCUSSION

The findings of this research study entitled “**The Impact of Breakfast on Adolescents Nutritional Health**” are presented in this chapter under four sections namely General Profile, Consumption Pattern of Breakfast, Knowledge Regarding Importance of Breakfast, Nutritional Assessment of Breakfast Habits, Mental Well Being.

### 2.1 General Profile of the Selected Subject Age, Gender of the Adolescents

In this study Importance of Breakfast among the Adolescents of Holy Christ school, Jayanagar, Bangalore aged between 11- 16 years was selected for the prevalence study. According to the study 100 adolescents were included and they were divided into three age groups i.e., 11-12 Years, 13-14 Years, and 15-16 Years.

**Table 4.1: Age & Gender**

Age Groups (years)	Gender		Chi square test
	Boys (%)	Girls (%)	
11-12	12.0	26.0	245.7 (p<0.001) #
13-14	50.0	44.0	27.2 (p>0.001) *
15-16	38.0	30.0	17.3 (p>0.001) *

# Significantly difference (p<0.001)

\* NS –Non significantly different (p>0.05)

From Table 4.1, we can understand that the majority of participants belonged to age group of 13 – 14 years. There was a significant difference between the number of girls and boys belonging to the age group of 11-12 years and there was no significant difference in the other categories.

### Height and Weight of the Adolescents

**Table 4.2: Height & Weight**

Gender	BOYS				GIRLS			
	Age (years)	11-12	13-14	15-16	p-Value	11-12	13-14	15-16
Height (cm)	134.4 ±5.4	150.8 ±41.6	166.7 ±7.8	P< 0.05*	135.8 ±9.4	149.4 ±8.2	151.6 ±5.7	P< 0.05*
Weight (kg)	30.69 ±4.2	41.6± 6.3	52.5± 7.0	P< 0.05*	27.3± 4.8	35.3± 7.2	42.1± 8.3	P< 0.05*

Mean, ± Standard deviation, \* significantly different (p<0.05)

It was evident from the table 4.2 there was a significant difference in height and weight of boys and girls belonging to respective ages. There was a significant difference in the standard deviation and the result of the chi square test. The Chi square value ranges are 11.73.

## Types of Family and Family Size of the Adolescents

**Table 4.3 Type of family and family size**

Age Groups (years)	Characteristics	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12	3-4	33.3	46.1	45.7 (p>0.001) *
	5-6	30.4	46.2	
	<6	36.3	7.7	
13-14	3-4	44.0	40.9	13.4 (p>0.001) *
	5-6	32.0	31.8	
	<6	24.0	27.3	
15-16	3-4	53.9	33.3	15.4 (p>0.001) *
	5-6	21.1	33.3	
	<6	24.8	32.4	
	<b>Type of Family</b>			
11-12 Y	Nuclear Family	54.2	65.8	65.3 (p<0.001) #
	Joint family	45.8	34.2	
13-14 Y	Nuclear Family	58.3	58.6	28.2 (p>0.001) *
	Joint family	41.7	41.4	
15-16 Y	Nuclear Family	63.7	60.3	13.4(p>0.001) *
	Joint family	36.3	39.7	

\* NS – Non significantly different (p>0.05)

It was evident from the table 4.3 that there was no significant difference in family size of boys and girls belonging to respective ages.

There was a significant difference in types of family of boys and girls belonging to 11-12 years, whereas the boys and girls showed insignificant difference in types

## 2.2 Consumption pattern of breakfast of Adolescents

**Table 4.4: Eats breakfast in the morning**

Age Groups (years)	Eats breakfast in the morning	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12	Yes	83.3	53.8	365.3 (p<0.001) #
	No	16.8	46.2	
13-14	Yes	92.0	52.8	428.2 (p<0.001) #
	No	8.0	47.2	
15-16	Yes	78.9	73.3	513.4(p<0.001) #
	No	21.1	26.7	

#Significantly difference (p<0.001)

From the table 4.4, there was a significant difference in consumption of breakfast in all the respective age groups.

We can understand that the boys exceed girls in terms of consuming breakfast in all the categories.

In the similar study “The Correlation between Adolescent Daily Breakfast Consumption and Socio Demographic: Trends in 23 European Countries Participating in the Health Behaviour in school – aged children study (2002-2018)” show that boys exceed girls in consuming breakfast.

**Table 4.5: Do not eat breakfast regularly**

Age Groups (years)	Do not eat breakfast regularly	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12	Not Hungry	33.3	53.3	55.3 (p>0.001) *
	Not enough time	60.4	37.2	
	Breakfast not prepared	0	3.5	
	Do not Like food served	1.6	0.6	
	On a diet	2.5	1.6	
	Do not Want to gain weight	1.2	0	
	Other reason	1.0	3.8	
	Not Hungry	40.3	43.3	
	Not enough time	50.2	41.2	
	Breakfast not prepared	3.2	3.5	
	Do not Like food served	1.6	0.7	



13-14	On a diet	2.5	2.2	36.3 (p>0.001) *
	Do not Want to gain weight	1.2	2.3	
	Other reason	1.0	6.8	
15-16	Not Hungry	42.1	35.6	52.3 (p>0.001)
	Not enough time	43.2	54.6	
	Breakfast not prepared	5.2	3.4	
	Do not Like food served	2.1	0.7	
	On a diet	3.5	2.2	
	Do not Want to gain weight	2.2	2.3	
	Other reason	1.7	1.2	

\* NS – Non significantly different (p>0.05)

From the analysis we can understand that there are only two major factors which impact the act of skipping breakfast, which are “Not Hungry” and “Not Enough Time”.

In the age groups 11-12 and 13-14 we can notice that girls are not hungry and boys cannot find enough time. As the age group increases both genders commonly cannot find enough time for consuming breakfast.

**Table 4.6: Frequency of Consumption of Breakfast in a week**

Age Groups (years)	Frequency of Consumption of Breakfast in a Week	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12	0-1 time	16.7	15.4	235.3 (p<0.001) #
	2-3 time	0.0	23.1	
	4-5 time	33.3	15.4	
	6-7 time	<b>50.0</b>	38.5	
13-14	0-1 time	8.0	9.1	98.3 (p>0.001) *
	2-3 time	32.0	36.4	
	4-5 time	44.0	31.8	
	6-7 time	16.0	22.7	
15-16	0-1 time	10.5	13.4	88.2 (p>0.001) *
	2-3 time	37.4	13.3	
	4-5 time	31.6	<b>53.3</b>	
	6-7 time	10.5	20.0	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

The table elucidates that majority of boys from the age category of 11-12 years have breakfast 6-7 times a week. As the age group increases, we can see a significant decline in breakfast consumption of boys. Whereas for girls, they initially consumed breakfast irregularly. As the age group increases, we can notice that majority of the girls at least have breakfast 4-5 times a week.

**Table 4.7: Time for consumption of breakfast**

Age Groups (years)	Time of taking the break fast	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12	Before 8.00 AM	33.4	30.8	128.3 (p>0.001) *
	8.00-10.00 AM	49.9	<b>61.5</b>	
	After 10.00 AM	16.7	7.7	
13-14	Before 8.00 AM	<b>60</b>	<b>50</b>	258.2 (p<0.001) #
	8.00-10.00 AM	20	40.9	
	After 10.00 AM	20	9.1	
15-16	Before 8.00 AM	<b>58</b>	<b>73.3</b>	383.4(p<0.001) #
	8.00-10.00 AM	26.2	13.4	
	After 10.00 AM	15.8	13.3	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

In the table 4.7 we noticed that both genders in the age group of 11 -12 prefer having breakfast between 8:00am to 10:00 am. As we move ahead in the age groups, the time for both genders shift to Before 8:00 am.

**Table 4.8: With whom and where do you consume breakfast**

Age Groups	Place for taking the breakfast	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12	Food Stall/Fast Food Corners	0	0	325.3 (p<0.001) #
	Home/ Hostel	83.3	92.3	
	Other	16.7	7.7	
13-14	Food Stall/Fast Food Corners	0	0	288.5 (p<0.001) #
	Home/ Hostel	96.0	90.9	
	Other	4.0	9.1	
15-16	Food Stall/Fast Food Corners	0	0	302.3(p<0.001) #
	Home/ Hostel	89.5	100	
	Other	10.5	0	
	<b>With whom do you have Breakfast</b>			
11-12	With friends	16.7	0	3854 (p<0.001) #
	Alone	83.3	100	
13-14	With friends	16.0	9.1	408.6 (p<0.001) #
	Alone	84	90.9	
15-16	With friends	21.1	0	463.8(p<0.001) #
	Alone	78.9	100	

# Significantly difference (p<0.001)

From the numbers we understand that both genders have their food at home/hostel. Additionally, we also figure out that the boys and girls from all age categories generally eat their food alone.

**Table 4.9: Food item included in breakfast**

Age Groups (years)	eat breakfast regularly	Gender		Chi Square Test
		Boys (%)	Girls (%)	
11-12	Fruit or Juice	0	7.2	69.3 (p>0.001) *
	Cereal with milk	33.3	17.9	
	Bread Toast rolls	18.7	18.3	
	Paratha, Puri, Roti	0	17.7	
	Butter or spread	10.2	8.1	
	Milk	16.7	10.4	
	Eggs	2.3	5	
	Meat	2.1	0	
	Coffee or tea	16.7	7.7	
	Other Foods	0	7.7	
13-14	Fruit or Juice	0	8.5	53.4 (p>0.001) *
	Cereal with milk	33.2	9.5	
	Bread Toast rolls	13.8	13.3	
	Paratha, Puri, Roti	3.8	5.7	
	Butter or spread	7.2	13.5	
	Milk	15.3	10.1	
	Eggs	10.2	16.8	
	Meat	2.8	1.8	
	Coffee or tea	13.7	12.9	
	Other Foods	0	7.9	
15-16	Fruit or Juice	0	12.2	28.3 (p>0.001) *
	Cereal with milk	21.8	12.9	
	Bread Toast rolls	20.7	13.3	
	Paratha, Puri, Roti	2.3	7.7	
	Butter or spread	10.2	10.1	
	Milk	20.3	10.1	
	Eggs	4.4	12.3	
	Meat	3.6	1	
	Coffee or tea	16.7	12.7	
	Other Foods	0	7.7	

\* NS –Non significantly different (p>0.05)

From the table 4.9 we apprehend that the boys prefer cereals with milk over other options in all age categories. In the category of girls there is no preferred breakfast option and preferences is spread across the available options.

**2.3 Knowledge regarding importance of breakfast**  
**Breakfast consumption will increase calorie intake in the next meal**

*Table 4.10: Breakfast consumption will increase calorie intake in the next meal*

Age Groups (years)	Breakfast consumption will increase calorie intake in the next meal	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	<b>83.3</b>	30.8	128.3 (p>0.001) *
	False	0	15.4	
	Not sure	16.7	53.8	
13-14 Y	True	<b>56.0</b>	18.2	153.2 (p>0.001) *
	False	20.0	22.7	
	Not sure	24.0	59.1	
15-16 Y	True	36.8	20.0	183.3(p>0.001) *
	False	42.1	20.0	
	Not sure	21.1	<b>60.0</b>	

\* NS –Non significantly different (p>0.05)

From the data we understand that boys believe that breakfast consumption will increase calorie intake in next meal. Whereas the girls do not have much understanding in this space and have majorly chosen the option of “Not Sure”

**Breakfast provides numerous vitamins and minerals for our body; High Fiber Breakfast helps you stay satisfied for a longer time.**

*Table 4.11: Breakfast provides satiety and micronutrients.*

Age Groups (years)	Statement	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	High-fibre breakfast helps me satisfied for a longer time			132.5 (p>0.001) *
	True	83.3	<b>84.6</b>	
	False	16.7	0	
13-14 Y	True	32	<b>63.6</b>	162.6 (p>0.001) *
	False	16	4.5	
	Not sure	52	31.8	
15-16 Y	True	52.6	<b>80</b>	181.2 (p>0.001)
	False	26.3	20	
	Not sure	21.1	0	
<b>Breakfast provides vitamins and minerals for our body</b>				
11-12 Y	True	<b>100</b>	84.6	128.3 (p>0.001) *
	False	0	0	
	Not sure	0	15.4	
13-14 Y	True	<b>100</b>	95.4	258.2(p<0.001) #
	False	0	4.5	
	Not sure	0	0	
15-16 Y	True	<b>100</b>	<b>100</b>	383.4 (p<0.001) #
	False	0	0	
	Not sure	0	0	

From the table 4.11 we can understand that girls from all categories understand better than the boys that the high – fibre in breakfast helps them stay satisfied for a longer period of time.

Both genders from for all age groups unanimously agree that breakfast provides numerous vitamins and minerals for our body.

The best time to have breakfast is between 6.00 to 10.00 am in the morning

**Table 4.12: The optimal time to eat breakfast is between 6.00 to 10.00 am**

Age Groups (years)	The optimal time to eat breakfast is between 6 to 10 am	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	<b>83.3</b>	<b>100</b>	358.3 (p<0.001) #
	False	0	0	
	Not sure	16.7	0	
13-14 Y	True	<b>72</b>	<b>100</b>	358.7 (p<0.001) #
	False	16	0	
	Not sure	8	0	
15-16 Y	True	<b>89.4</b>	<b>93.3</b>	293.5(p<0.001) #
	False	5.3	6.7	
	Not sure	5.3	0	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

The data states that both boys and girls from all age groups agree to the statement to eat breakfast.

**Eating breakfast helps students to concentrate, retain new information and have a good mood, improve students' academic performance.**

**Table 4.13: Eating breakfast helps students to concentrate and, improve students' academic performance.**

Age Groups (years)	STATEMENTS	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	Eating breakfast helps students to concentrate and retain information			238.2 (p<0.001) #
	True	33.3	<b>69.2</b>	
	False	33.3	0	
13-14 Y	True	<b>64</b>	9.1	252.4 (p<0.001) #
	False	16	31.8	
	Not sure	20	59.1	
15-16 Y	True	<b>84.2</b>	80	183.5(p>0.001) *
	False	10.5	13.3	
	Not sure	5.3	6.7	

Breakfast that is high in fibre and protein, but low in fats and sugars can reduce concentration levels during the learning process				
11-12 Y	True	16.7	15.4	108.3 (p>0.001) *
	False	<b>66.7</b>	7.7	
	Not sure	16.6	<b>76.9</b>	
13-14 Y	True	24	40.9	128.6 (p>0.001) *
	False	<b>60</b>	13.6	
	Not sure	16	<b>45.5</b>	
15-16 Y	True	31.6	6.6	123.2 (p>0.001) *
	False	15.8	46.7	
	Not sure	<b>52.6</b>	<b>46.7</b>	

<b>Eating breakfast helps to have a good mood and improve students' academic performance</b>				
11-12 Y	True	<b>66.7</b>	<b>84.6</b>	167.4 (p>0.001) *
	False	0	0	
	Not sure	33.3	15.4	
13-14 Y	True	<b>72</b>	<b>86.4</b>	258.2 (p<0.001) #
	False	20	0	
	Not sure	8	13.6	
15-16 Y	True	<b>84.2</b>	<b>80</b>	56.4(p>0.001) *
	False	0	0	
	Not sure	15.8	20	

From the table 4.13 we can summarise that all categories of genders accept that breakfast helps them retain concentrate and retain new information, also helps them stay in good mood and improve academic performance.

But the boys and girls do not believe or are not sure that breakfast with high fibre and protein, low fats and sugar can reduce concentration levels during learning process

#### **Breakfast supplies glucose to fuel the brain after an overnight fast .**

**Table 4.14: Breakfast supplies glucose to fuel the brain after an overnight fast**

Age Groups (years)	Breakfast provides glucose to fuel the brain after an overnight fast	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	<b>66.7</b>	38.5	157.3 (p>0.001) *
	False	16.7	7.7	
	Not sure	16.6	<b>46.2</b>	
13-14 Y	True	<b>64.0</b>	<b>43.0</b>	298.5 (p<0.001) #
	False	20	13.6	
	Not sure	16	36.4	
15-16 Y	True	<b>78.9</b>	13.3	383.6(p<0.001) #
	False	0	13.3	
	Not sure	21.1	<b>73.6</b>	

# Significantly difference (p<0.001) and \*NS –Non significantly different (p>0.05)

From the table 4.14, Boys from all age group and girls from 13-14 years believe that breakfast acts as a fuel to the brain to function properly after a long overnight fast, whereas girls form 11-12 years and 15-16 years are not sure about the side of effects of breakfast as a fuel.

#### **Regular consumption of healthy breakfast will help to reduce body weight**

**Table 4.15: Regular consumption of a healthy breakfast will help to reduce body weight**

Age Groups (years)	Regular consumption of a healthy breakfast will help to reduce body weight	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	50	<b>69.2</b>	158.3 (p>0.001) *
	False	33.3	15.4	
	Not sure	16.7	15.4	
13-14 Y	True	<b>68</b>	31.8	289.2 (p<0.001) #
	False	8.0	13.6	
	Not sure	24	<b>54.5</b>	
15-16 Y	True	<b>89.5</b>	<b>60.0</b>	323.8(p<0.001) #
	False	5.3	13.6	
	Not sure	5.3	26.7	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

Above table 4.15 helps us elucidate that majority of boys from all age groups believe that consumption of healthy breakfast will help in reducing body weight. Whereas in girls only age groups 11-12 years and 15-16 years believe the same and the age group of 13-14 years are not sure about it.

## Eating breakfast will lead to consumption of unhealthy snacks

**Table 4.16: Eating breakfast will lead to a consumption of unhealthy snacks**

Age Groups (years)	Eating breakfast will lead to a consumption of unhealthy snacks	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	16.7	7.7	128.3 (p>0.001) *
	False	<b>83.3</b>	46.1	
	Not sure	0	46.2	
13-14 Y	True	24	13.6	248.6 (p>0.001) *
	False	<b>64</b>	40.9	
	Not sure	12	45.5	
15-16 Y	True	36.9	6.7	223.5 (p>0.001) *
	False	<b>63.1</b>	<b>86.7</b>	
	Not sure	0	6.7	

\*NS –Non significantly different (p>0.05)

From the responses we understand that boys from all age categories do not find any correlation between eating breakfast and consumption of unhealthy snacks. In the category of girls, the age group of 11-12 years and 13-14 years have a mixed opinion of it being “False” and “Not sure”, whereas the 15-16 years are sure that there is no correlation in the same.

## Risks of heart diseases can be reduced by eating high energy and fibrous breakfast

**Table 4.17: Risks of heart diseases can be reduced by eating high energy and fibrous breakfast**

Age Groups (years)	Risks of heart diseases can be reduced by eating high energy and fibrous breakfast	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	<b>100</b>	23	428.8 (p<0.001) #
	False	0	30.8	
	Not sure	0	46.2	
13-14 Y	True	<b>64</b>	31.8	272.5 (p<0.001) #
	False	24	18.2	
	Not sure	12	40.9	
15-16 Y	True	52.6	40	383.4(p<0.001) #
	False	5.3	20	
	Not sure	42.1	40	

# Significantly difference (p<0.001)

It is evident from table 4.17 that boys from all age groups majorly acknowledge the fact that risk of heart diseases can be reduced by eating high energy and fibrous breakfast, whereas most girls from all age category are not sure about the impact of breakfast on risk of heart diseases.

## Breakfast increases the consumption of food high in fat

**Table 4.18: Breakfast increases the consumption of food high in fat**

Age Groups (years)	Breakfast increases the consumption of old high in fat such as fried foods	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	True	16.7	15.3	198.4 (p>0.001) *
	False	<b>83.3</b>	38.5	
	Not sure	0	<b>46.2</b>	
13-14 Y	True	<b>52</b>	36.4	158.2 (p>0.001) *
	False	32	<b>45.4</b>	
	Not sure	16	18.2	
15-16 Y	True	<b>68.4</b>	40	183.2 (p>0.001) *
	False	21.1	<b>53.3</b>	
	Not sure	10.5	6.7	

\* NS –Non significantly different (p>0.05)

The study lets us know that only boys of age category 13-14 years and 15-16 years believe that eating breakfast will increase consumption of food high in fat, whereas 11-12 years boys and 13–16-year girls do not accept this fact. Girls from 11-12 years are not sure about the topic.

#### 4.4. Mental Well Being

##### Feeling irritated if you skip breakfast

**Table 4.19: Feeling irritated and anxious if you skip breakfast**

Age Groups	STATEMENTS	Gender		Chi square test
	Feel irritated if you skip breakfast	Boys (%)	Girls (%)	
11-12 Y	Yes	16.7	<b>61.5</b>	245.7 (p<0.001) #
	No	<b>50.0</b>	7.7	
	Not sure	33.3	30.8	
13-14 Y	Yes	<b>56</b>	<b>72.7</b>	258.3 (p<0.001) #
	No	44	13.6	
	Not sure			
15-16 Y	Yes	<b>57.9</b>	<b>46.7</b>	152.7 (p>0.001) *
	No	26.3	33.3	
	Not sure	15.8	20	
	Feel anxious if you skip breakfast			Chi square test
11-12 Y	Yes	16.7	15.4	285.4 (p<0.001) #
	No	<b>83.3</b>	<b>53.8</b>	
	Not sure		30.8	
13-14 Y	Yes	36	13.6	112.3 (p>0.001) *
	No	<b>52</b>	<b>45.5</b>	
	Not sure	12	40.9	
15-16 Y	Yes	36.8	26.8	183.3(p>0.001) *
	No	<b>52.6</b>	<b>66.7</b>	
	Not sure	11.6	6.7	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

The table helps us understand that most boys and all girls from all age categories felt that skipping breakfast makes them feel irritated, except boys from 11-12 years.

All boys and girls simultaneously feel that skipping breakfast does not make them feel anxious.

##### Concentrate properly if you skip breakfast

**Table 4.20: Concentrate properly if you skip breakfast**

Age Groups (years)	Concentrate properly if you skip breakfast	Gender		Chi square test
		Boys (%)	Girls (%)	
11-12 Y	Yes	16.7	<b>69.2</b>	358.3 (p<0.001) #
	No	<b>83.3</b>	30.8	
	Not sure	0	0	
13-14 Y	Yes	<b>44</b>	<b>50</b>	162.7 (p>0.001) *
	No	28	36.4	
	Not sure	28	13.6	
15-16 Y	Yes	<b>68.4</b>	<b>66.7</b>	32.7 (p>0.001) *
	No	26.3	26.7	
	Not sure	5.3	6.7	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

From table 4.20 we understand that expect boys from 11-12 years, majority feel that they can concentrate properly even after skipping their breakfast.

## Skipping Breakfast can harm your studies and make one feel weak

**Table 4.21: Skipping breakfast can harm your studies and make one feel weak**

Age Groups (years)	STATEMENTS	Gender		Chi square test
	Skipping breakfast effect on your studies	Boys (%)	Girls (%)	
11-12 Y	Yes	16.7	<b>61.5</b>	325.4 (p<0.001) <sup>#</sup>
	No	<b>83.3</b>	15.4	
	Not sure	0	23.1	
13-14 Y	Yes	<b>60</b>	<b>63.6</b>	78.3(p>0.001)*
	No	36	27.3	
	Not sure	4	9.1	
15-16 Y	Yes	<b>47.4</b>	<b>73.3</b>	283.3(p<0.001) <sup>#</sup>
	No	31.6	20	
	Not sure	21.1	6.7	
<b>Feel physically weak if you skip breakfast</b>				
11-12 Y	Yes	<b>50</b>	<b>76.9</b>	105.3 (p>0.001) *
	No	33.3	15.4	
	Not sure	16.7	7.7	
13-14 Y	Yes	<b>60</b>	<b>50</b>	98.2 (p>0.001) *
	No	20	27.3	
	Not sure	20	22.7	
15-16 Y	Yes	<b>63.2</b>	<b>60.0</b>	83.5 (p>0.001) *
	No	21.0	26.7	
	Not sure	15.8	13.3	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05)

From table 4.21 we can understand that majority both boys and girls from all age group feel that skipping breakfast effects their studies except boys from 11-12 years who feel there is no impact of breakfast on their studies. All age groups of boys and girls majorly feel that they feel physically weak if they skip breakfast.

## Communication skills gets affected if we skip breakfast

**Table 4.22: Communication skills gets affected if we skip breakfast**

Age Groups	STATEMENTS	Gender		Chi square test
	Communication skills get affected if we skip breakfast	Boys (%)	Girls (%)	
11-12 Y	Yes	16.7	30.7	256.7 (p<0.001) <sup>#</sup>
	No	16.6	23.1	
	Not sure	<b>66.7</b>	<b>46.2</b>	
13-14 Y	Yes	<b>48</b>	27.3	348.6 (p<0.001) <sup>#</sup>
	No	16	<b>50</b>	
	Not sure	36	22.7	
15-16 Y	Yes	<b>42.1</b>	40	102.3(p>0.001) *
	No	36.8	<b>46.7</b>	
	Not sure	21.1	13.4	

# Significantly difference (p<0.001) and \*NS -Non significantly different (p>0.05) Table 4.22 elucidates boys and girls from 11-12 years are not sure about the impact of skipping breakfast on communication skills, whereas the rest of boys do agree with its impact on communication and rest of girls do not accept with its impact on breakfast.

## Skipping breakfast affects your social life.

**Table 4.23: Skipping breakfast affects your social life**

Age Groups	Skipping breakfast affect your social life			Chi square test
11-12 Y	Yes	0	30.8	365.4 (p<0.001) <sup>#</sup>
	No	50	15.7	
	Not sure	50	<b>53.8</b>	
	Yes	<b>60</b>	45.5	



13-14 Y	No	20	4.5	228.2 (p<0.001) #
	Not sure	20	50	
15-16 Y	Yes	36.8	46.6	113.5(p>0.001) *
	No	52.6	26.7	
	Not sure	10.6	26.7	

# Significantly difference (p<0.001) and \* NS –Non significantly different (p>0.05) Boys and girls from 11-12 years and 13-14 years girls are not sure about the impact of skipping breakfast on social life, whereas 13-14 years boys and 15-16 years girls accept with its impact on social life and 15-16 years boys vice versa of it.

#### 4.5 Food Frequency and Nutrient intake Frequency of food stuffs

**Table 4.24 Food intake of Boys and Girls in various age group**

Age Group (years)		Cereals & Millets	Pulses & legumes	& Leafy vegetables	Other vegetables	Roots & Tubers	Fruits	Milk	Fats & Oils	Sugar
11-12 Years	Boys	149.81±46.249	30.19±17.89	4.19±2.926	108.46±49.935	22.31±19.08	42.50±36.531	148.08±53.349	6.35±2.262	13.46±2.746
	Girls	132.20±53.682	25.50±19.930	3.50±2.443	105.30±52.996	25.60±13.118	46.70±31.985	147.0±56.399	5.58±2.49	13.10±2.652
13-14 Years	Boys	175.22±24.610	37.17±11.264	3.78±2.022	100.43±46.046	16.96±17.693	47.61±30.558	155.3±58.366	8.48±9.346	15.43±3.666
	Girls	157.60±59.789	25.97±18.797	3.08±2.012	93.77±55.608	11.62±11.016	41.10±40.082	161.10±64.643	5.62±2.368	13.27±3.223
15-16 Years	Boys	191.18±18.585	42.35±10.326	4.59±1.906	106.76±52.379	25.00±16.583	64.12±40.859	137.65±63.961	10.12±10.647	15.29±4.497
	Girls	167.41±67.524	35.12±17.765	4.27±3.689	100.06±61.788	26.30±8.283	28.33±8.140	146.05±74.367	5.27±5.621	12.22±2.622

**Table 4.25: Nutrient intake of Boys and Girls in various age group**

Age Group (years)		Energy (g)	Protein (g)	Fat (g)	Calcium (mg)	Iron (mg)	Vitamin A (mg)	Vitamin B1 (mg)	Riboflavin (mg)	Niacin (mg)
11-12 Years	Boys	1395±185.5	37.81±10.3	16.27±5.3	427.16±15.9	27.69±10.1	403.24±73.5	5.59±26.1	1.32±2.912	8.87±5.534
	Girls	1253±303.144	31.98±7.844	16.20±3.299	440.46±79.935	19.35±4.92	420.97±74.248	8.0±37.0	7.1±1.012	5.91±1.627
13-14 Years	Boys	1396±83.098	46.83±8.454	17.8±6.443	443.8±93.896	28.6±7.640	369.1±63.628	0.54±.261	2.07±3.747	10.7±6.756
	Girls	1355±176.2	44.78±11.040	17.31±5.937	445.28±84.415	28.36±7.921	369.20±64.240	5.7±.273	1.68±3.269	10.21±5.977
15-16 Years	Boys	1464±205.5	50.44±11.2	18.30±6.5	442.22±87.7	22.79±6.8	351.63±113.102	6.1±.323	1.62±2.565	7.80±4.033
	Girls	1404.9±149.51	37.6±8.718	16.4±4.219	430.1±59.627	27.9±9.031	371.9±49.858	0.54±.299	0.47±.228	8.0±1.561

It was evident from the table that the energy intakes are higher for boys at 65% when compared with girls at 59%. There is a minimal difference in protein intake among boys and girls at 80% and 76%. The fat intake is higher in boys at 65% and when compared with girls at 58%. The calcium intake is higher in boys at 75% when compared with girls at 59%. The iron intake is same for boys and girls that is 97%. Vitamin A intake is 70% for boys when compared with girls 64%. There is minimal difference in thiamine intake among boys and girls that is 80% and 79%. The riboflavin intake is higher for boys that is

50% when compared with girls at 44%. There is a minimal difference in niacin intake among boys and girls at 65% and 61%. The folic acid intake is higher in boys at 70% when compared with girls at 66%. **Thus, the average intake of nutrients in boys is higher when compared with girls.**

#### SUMMARY AND CONCLUSION

The primary objective of this investigation was to scrutinize the breakfast consumption patterns among boys and girl adolescents, aged 11 to 16, with the aim of raising awareness of breakfast within this demographic group. The study comprised a cross-sectional sample of 50 boys and 50 girls drawn from the students of Holy Christ School in Bangalore.

To understand the dietary habits, an assessment of dietary frequency was employed as the primary data-gathering instrument. Complementary to this quantitative and qualitative approach of personal dietary histories, consumption routines, and awareness levels regarding the nutritional and psychological significance of breakfast were also gathered. The statistical analysis contains the computation of mean values, standard deviations, percentages, and the application of the chi-square test to find patterns within the dataset.

The results underscored a noteworthy discrepancy between the breakfast consumption behaviours of boy and girl adolescents, with boys exhibiting a more consistent adherence to breakfast consumption compared to girls. Although the difference in preferred breakfast items between genders was negligible, an inclination towards consuming breakfast alone was observed irrespective of gender.

Furthermore, the findings showcased a shared cognizance among both boys and girls regarding the importance of breakfast, with a disparity in gender favouring boys in the depth of understanding. Intriguingly, neither gender demonstrated a profound understanding of the greater impact of breakfast on mental wellbeing, portraying a gap in nutritional education. Thus, with the nutritional consumption behaviours of both the genders we understand that boys exhibit a superior nutrient profile compared to the girls.

In summation, this thesis highlights the consequential impact between breakfast habits and the mental wellbeing of adolescents. The act of skipping breakfast emerges as a correlation to increased irritability and reduced cognitive focus. It is important to propagate awareness regarding breakfast habits, as it is showcased by the positive correlation between awareness levels and consistent breakfast routines. By nurturing such awareness, particularly within the same age group, parents can make meaningful contributions towards educating and overall wellbeing of adolescent groups.

Overall, the study underscores the critical role of breakfast in maintaining optimal health and well-being among adolescents. By examining dietary choices, nutrient intake, and health risks associated with breakfast habits, the research contributes valuable insights to public health interventions and nutritional education programs aimed at promoting healthy eating behaviours among young individuals.

### **Limitations**

1. Lack of nutritional knowledge for the parents and its influence on children.
2. Wrong choice of food consumption.
3. Cultural and social practice of skipping break.
4. There should be more children in the program.

### **Recommendations**

1. Signifying the impact of breakfast on overall health and mental well-being.
2. Promoting balanced breakfast choice.
3. Encouraging regular breakfast consumption.

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