



A CORRELATIVE STUDY TO ASSES THE BREAKFAST EATING HABITS AND COGNITIVE ABILITY AMONG HIGH SCHOOL STUDENTS OF MANGALURU

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ABSTRACT

Background: Breakfast is known as the fuel of the brain. The human brain is a remarkable organ and the most metabolically active body organ. **Objectives:** To determine the breakfast eating habits and cognitive ability to compare the difference in the cognitive ability between regular breakfast eaters and irregular breakfast eaters and to find the relationship between cognitive ability and breakfast eating habits among high school students. **Methods:** Survey research approach and descriptive design was used to conduct the study. Self structured questionnaire and short term memory test, letter cancellation test and digit symbol substitution test was used to collect data from 100 samples from 2 high schools. The collected data was analyzed by using descriptive and inferential statistics. **Result:** The study shows that majority of the students have excellent cognition level [59%] range of score between ^[61-80], 11% of the students have good cognition level the range of score between ^[41-60], and the 30% of students belongs to the average level of cognition between the range of ^[21-40]. Study also says that there was significant difference in the cognitive ability score among Group I and Group II. The study result highlights that there was positive correlation between breakfast eating habits and cognitive ability. Questionnaire "r"(1) =1.00, short term memory test "r"(1) =1.003, letter cancellation test "r" (1) =1.007, digit symbol substitution test "r" (1) =1.005. **Conclusion:** The findings of the study concluded that there is a positive correlation between breakfast eating habits and cognitive ability among selected high school students.

KEYWORDS: Breakfast eating habits, cognitive ability.

INTRODUCTION

Breakfast is known as the brain food. Breakfast have an important role in maintaining a good health and improving cognitive ability of individuals. Breakfast has been described as the most important meal of the day, contributing substantially to daily nutrient intake and energy needs. For children, breakfast consumption has been associated with learning and better school performance.^[1]

Breakfast consumers tend to have higher micronutrient intakes, partly because of the fortification of breakfast cereals, and a better macronutrient profile than breakfast skippers.^[2]

Daily breakfast consumption (DBC) is recommended for adults and children alike. Efforts have a particularly focused on promoting and facilitating intake among school children due to associated benefits.^[3,4,5,6,7]

A correlation study was conducted to investigate the relationship between breakfast habits and academic performance and vigilance in upper primary children. The study involved 72 children of 5th, 6th and 7th grades from two schools in Western Australia. Data were obtained in three ways (a) the children completed a questionnaire which explored their breakfast habits, (b) the class teachers recorded the classroom performance/grades based on their classroom evaluation, and behaviour of the children based on the observations, and (c) the children were then given three vigilance tasks approximately one and a half hours into the school day. The children were divided into breakfast and no – breakfast groups based on the self-report of breakfast consumption on that day. The study found little relationship between breakfast, academic performance and vigilance.^[8]

METHADODOLOGY

Descriptive research design is adopted in this study to assess the relationship of breakfast eating habit and

cognitive ability among high school students of Mangaluru. Sample size consists of 100 students of selected high schools of Mangaluru. The participants was selected by using non probability purposive sampling technique. The instruments selected in a research should be the vehicle that would best obtain data for drawing conclusion pertinent to the study. The tool for data collection has 3 sections: section A, Section B and Section C. Demographic Proforma which consisted of 6 items: Age, gender, grade, religion and residence. Structured questionnaire on breakfast eating habit - Tool to assess the breakfast eating pattern of the high school students. Includes tests to assess the cognitive ability of the high school students. The tests are as follows:

- Short-term memory test.
- Letter cancellation test – for assessing eye-hand coordination.
- The digit symbol substitution test – for assessing the recall ability

In order to assess the reliability of breakfast eating habit and cognitive ability of high school students will be calculated by test retest using Karl Pearson's correlation coefficient method.

RESULTS

The data was tabulated, analysed and interpreted using descriptive and inferential statistics based on the objectives and hypothesis of the study.

Table 1: Distribution of the sample according to the demographic variables.

Si.no	Variables	Frequency	Percentage (%)
1	Age (in years):		
	13	39	39
	14	43	43
	15	17	17
	16	1	1
2	Gender		
	Male	49	49
	Female	51	51
3	Grade		
	8 th	39	39
	9 th	57	57
	10 th	4	4
4	Religion		
	Hindu	2	2
	Christian	2	2
	Muslim	96	96
	Any other specify	0	0
5	Residence		
	Home	100	100
	Hostel	0	0
	Paying guest	0	0
	With relatives	0	0

Table no 1 shows that majority (43%) of students belongs the age group of 14 years and (51%) of students are females, (57%) of students belongs to 9th grade, (96%) are Muslim, (100%) are from home.

Table 2: Frequency and percentage distribution of sample between regular and irregular breakfast eating habits.

N=100

Breakfast Habit	Frequency	Percentage
Regular breakfast habit	1-70	70%
Irregular breakfast habit	71- 100	30%
Total		100%

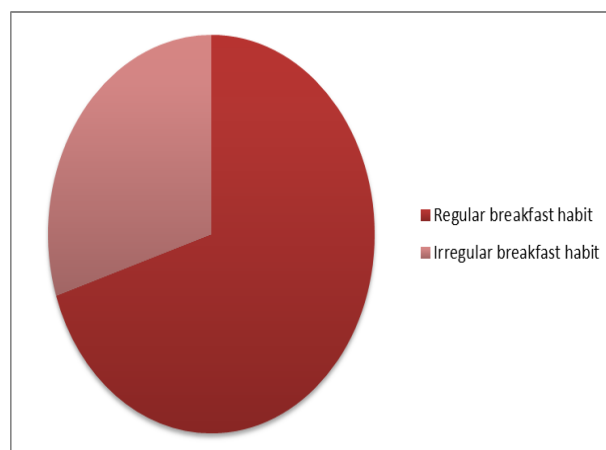


Figure 1: The figure 1 shows that majority [70%] of students belongs to the regular breakfast eating habits and the [30%] of students belongs to the irregular breakfast habits.

Table 3: Frequency and percentage of sample between the level of cognitive ability.

Level of Cognition	Range of Score	Frequency	Percentage %
Excellent	61-80	59	59%
Good	41-60	11	11%
Average	21-40	30	30%
Low	1-20	0	0%
			100%

The data presented in the table 3 shows that the frequency and percentage of sample between level of cognitive ability. The majority of the students belongs to the level of cognition of excellent [59%] range of score

between^[61-80], 11% of the students were having the good cognitive ability, the range of score between^[41-60], and the 30% of students belongs to the average level of cognition between the range of score of.^[21-40]

Table 4: Mean and standard deviation of short term memory test, Letter cancellation, Digit symbol substitution test according to breakfast eating habits.

Variable	Group 1 Regular (70)		Group 2 irregular (30)		Mean Difference
	Mean	Standard Deviation	Mean	Standard deviation	
STM	16.37	0.69	8.96	0.37	7.41
LC	32.8	4.7	9.96	0.70	22.84
DS	6.1	4	4.6	1.07	1.5

The data shows in the table 4 that there was significant difference in the cognitive ability score among Group I and Group II. Group I achieved highest score in Short

term Memory test (16.37±0.69), Letter Cancellation Test (32.8±4.7) and for Symbol Digit Substitution Test (6.1±4) when compared to Group II.

Table 5: Relationship between cognitive ability and breakfast eating habits.

N=100

Si.no	Variables	P Value	Karl Person Correlation (r)
1	Questionnaire	1	1.00
2	Short term memory test	1	1.003
3	Letter cancellation test	1	1.007
4	Digit symbol substitution test	1	1.005

The data presented in the table 5 shows that there is a positive correlation between breakfast eating habits and cognitive ability in the selected variable, questionnaire “r”(1)=1.00, short term memory test “r”(1)=1.003, letter cancellation test “r” (1) =1.007, digits symbol substitution test “r” (1)=1.005.

The data analyzed using descriptive and inferential statistics. This findings of the study revealed that there is positive correlation between breakfast eating habits and cognitive ability.

DISCUSSION

The findings of the study are discussed with reference to the objectives, hypothesis and findings of the similar studies. Discussion of the findings based on the sample characteristics, correlation between breakfast eating habits and cognitive ability among high school students at selected schools of Mangaluru.

This chapter deals with the discussion of the study with appropriate literature review, statistical analysis and findings of the study and based on the objectives of the study. A total of 100 high school students were selected by using purposive sampling technique.

Description of sample between regular and irregular breakfast eating habits

Findings of the current study reveals that majority [70%] of students belongs to the regular breakfast eating habits and the [30%] of students belongs to the irregular breakfast habits. The supportive study was conducted in China on ‘comparison of breakfast consumption in rural and urban among inner Mangolia medical university students and found the prevalence of breakfast consumption was 70.95%’. The prevalence of breakfast in rural area was higher than that in urban area.

Description of cognitive ability of sample

Present study reveals that the majority of the students belongs to the level of cognition of excellent [59%] range of score between^[61-80], 11% of the students cognition level was good, the range of score between^[41-60], and the 30% of students belongs to the average level of cognition between the range of score of^[21-40]. The present study showed that there was significant difference in the cognitive ability score among Group I and Group II. Group I achieved highest score in Short term Memory test (16.37±0.69), Letter Cancellation Test (32.8±4.7) and for Symbol Digit Substitution Test (6.1±4) when compared to Group II.

The supportive study on breakfast eating habit and its influence on attention concentration, immediate memory and school achievement conducted at National Institute of Nutrition, Hyderabad, revealed that there was significant difference in the letter cancellation test total scores with regular breakfast eaters (145.3 ± 32.4) achieving highest score compared to non-breakfast eaters (124.8 ± 32.8). This showed that regular breakfast eating habit opposed to irregular breakfast eating habit has abeneficial effect on memory and attention-concentration.^[9]

Relationship between cognitive ability and breakfast eating habits

The finding of the current study reveals that there is a positive correlation between breakfast eating habits and cognitive ability in the selected variable that is, questionnaire "r" (1) =1.00, short term memory test "r" (1) =1.003, letter cancellation test "r" (1) =1.007, digit symbol substitution test "r" (1) =1.005. Findings of the study are similar to a cross-sectional study conducted to assess the association between breakfast eating habits and cognitive performance among early adolescents aged 11-13 years. Results showed that regular breakfast eating habits were significantly ($P < 0.001$) associated with Simultaneous scale and Pattern Reasoning.^[10]

CONCLUSION

The present study has shown that (43%) of students belongs to the age group of 14 years and 51% of students are females, 57% of students are belongs to 9th grade, 96% are Muslim, 100% of students are coming from home. Majority [70%] of students belongs to the regular breakfast eating habits and the [30%] of students belongs to the irregular breakfast habits. The finding of the current study reveals that there is a positive correlation between breakfast eating habits and cognitive ability in the selected variable that is, questionnaire "r" (1) =1.00, short term memory test "r" (1) =1.003, letter cancellation test "r" (1) =1.007, digit symbol substitution test "r" (1) =1.005. Findings of the study are similar to a cross-sectional study conducted to assess the association between breakfast eating habits and cognitive performance among early adolescents aged 11-13 years. Results showed that regular breakfast eating habits were significantly ($P < 0.001$) associated with Simultaneous scale and Pattern Reasoning.^[46] Therefore the parents should concentrate on the breakfast eating habits of the students.

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