

A Study to Assess the Relationship between Breakfast Consumption Habits and Academic Performance of Adolescents Studying in Selected High School of Bagalkot with View to Develop an Information Guide Sheet

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Abstract: *Background:* Breakfast as the first meal of the day has been studied for its impact on health issues and academic performance. Beyond simply satisfying hunger, breakfast has been shown to improve both the health of and the cognitive abilities of individuals who consume the meal, specifically when it is composed of high-quality nutrients. For the purpose of this literature review, this section will be broken into two parts: (1) overall health benefits of breakfast, and (2) Academic performance improvements demonstrated by breakfast eaters. *Aims:* The aim of the study was to assess the relationship between breakfast consumption habits and academic performance of adolescents. *Methodology:* An explorative & descriptive research approach is used in the present study and descriptive co-relation study design is followed by the researcher. The sample size was 100 adolescents. The convenient sampling technique was used to select the study area and Proportionate stratified random sampling technique was used to select study participants. The pilot study revealed the feasibility of the study. Reliability of the tool was evident by using test-retest method. The reliability co-efficient of correlation of the likert scale of breakfast consumption habits and rating scale of academic performance of adolescents was obtained by test-retest method and the 'r' value were found to be 0.819, and 0.984. The data were collected with help of likert scale of breakfast consumption habits and rating scale of academic performance of adolescents. Analysis of data did by using descriptive and inferential statistics. *Findings:* The findings of the study revealed that the 60% children have good breakfast habits, 38% children had fair breakfast habits, 2% children had very good breakfast consumption habits. The 63% adolescents were having good academic performance whereas 33% had very good academic performance, 4% had fair academic performance. for the socio-demographic variables like Father's educational qualification is 5.862047. The Chi square table value is 3.846. Here the Chi square calculated values are higher than the Chi square table value. This indicates there was a significant association found between the father's educational qualification and breakfast consumption habits. $P < 0.05$. The socio-demographic variables are Year of studying & Type of family are 5.894291 & 5.255262 respectively. The Chi square table value is 3.846. Here the Chi square calculated values are higher than the Chi square table value. This indicates there was a significant association found between the Year of studying & Type of family with academic performance of the adolescents. $P < 0.05$. The r value obtained was 0.9080. Hence the moderate positive correlation association between the two variables is found statistically significant. *Conclusion:* After obtaining the result of the present study the researcher notices that there is positive co-relation between the breakfast consumption habits and academic performance of adolescents. Hence The researcher concluded that the breakfast consumption habits are having positive effects on the academic performance of adolescents. And with this the researcher also recommending the future researcher to conduct similar study in large scale with additional demographic variables, by using different methods in different regions of states or nations.

Keywords: Breakfast consumption habits, academic performance and adolescents

1. Introduction

"To eat is a necessity, but to eat intelligently is an art".
(Francois de la Rochefoucauld)

India is the second most populous country in the world where 34.33 percent of her population lies in the tender age group of 13-18 years. Out of these 35 states of India Karnataka is in 3rd place in adolescent's population. Total adolescents' population in Karnataka is 61, 095, 297. Among these boys are 30, 966, 657 and girls are 30, 128, 640.1

The term "Adolescence" comes from a Latin word meaning "to come to maturity". Adolescence is a period of transition from childhood to adulthood.²

Adolescent is defined by WHO as a person between 10-19 years of age. There are about 1.2 billion adolescents worldwide and one in every five people in the world is an adolescent. Adolescents constitute 18-25% of the population in member countries of South East Asia Region.²

Breakfast is the first meal of the day. The word is a compound of "break" and "fast" referring to the conclusion of fasting since the previous day's last meal, hence "breaking the fast". Breakfast is among the principal food which in

early morning satisfies the nutritional needs and increases mental work load ability.³

The simple definition of breakfast is “the first meal of the day,” which is consistent with the etymology to “break” the “fast”. It is simply identified as “the first meal of the day,” consumed within 2 hours of waking, before starting daily activities.⁴

Education is very important for human survival. Hence going to school is a very crucial aspect of human life. That is why the society places a great importance on education of children. It is the only legacy that can be handed over to succeeding generations. Parents who cherish education prefer to spend the last savings they have in getting the children educated, because in the later years or future when they are very old and helpless, it is those trained that will take over from them and possibly cater for their old age. It is imperative to note that without education a person will find it very hard to develop the skills needed to make it through everyday life. Feeding is often cited as a necessary condition for better academic performance.⁵

The academic performance refers to the level of schooling you have successfully completed and ability to attain success in your studies. Example of academic performance is attending school or college and receiving the grants or grades.⁶

- Academic: It is used to describe things that relate to the work done in schools, colleges, and universities, especially work which involves studying and reasoning rather than practical or technical skills.⁷
- Performance: It is an act of stating or presenting a play, consent or other form of entertainment. It is also called as the action or process of performing a task of function.⁸

Academic achievement is important because it prepares students for future careers. It also allows students to enter competitive fields. Academic achievement is often a sign of a refined intellect, which can help students in all areas of their lives.⁹

2. Material and Methods

Study Design and Participants

The researcher used convenient sampling technique for selection of Akhandeshwer high school, murnal RC Navanagar, Bagalkot. The researcher followed proportionate stratified random sampling method to select the 100 sample adolescents' children who are Studying 8th standard, 9th Standard and 10th standard. In 8th standard 37 children, in 9th standard 34 children and in 10th standard 32 children were studying, then researcher has followed proportionate stratified random sampling technique.

Instruments

In the present study there are 2 Tools: Tool – 1 is Likert scale & Tool – 2 is Rating scale.

Tool – 1: Part – 1: Socio-demographic variables of adolescents

It consists of sociodemographic variables such as Age, Year of studying, Gender, religion, educational status of father, educational status of mother, Occupation of father,

Occupation of mother, Type of family, Area of residence, Total no. of children in house, Family monthly income.

Part – 2: Items to Assess the breakfast consumption habits

The Likert scale is prepared to assess breakfast consumption habits. The scale consists of total 25 items with 5 points /options ranging from Not at all to very often. The scale consists of both positive & negative items. The positive items in the scale are: 2, 5, 6, 9, 10, 12, 13, 14, 15, 16. The negative items in the scale are: 1, 3, 4, 7, 8, 11, 17, 18, 19, 20, 21, 22, 23, 24, 25.

Scoring: For positive items Not at all carries 1 mark, rarely carries 2 marks, sometime carries 3 marks, often carries 4 marks and very often carries 5 marks. For negative items the score is reversed and Not at all carries 5 mark, rarely carries 4 marks, sometime carries 3 marks, often carries 2 marks and very often carries 1 marks, Hence For 1 item least possible score is 1 and maximum possible score is 5 so that for 25 items least possible score is 25 and maximum possible score is 125.

Tool – 2: Items to assess the Academic Performance of children.

Rating scale is prepared to assess academic performance of children. The scale consists of total 19 items. Each item is related to academic performance of adolescents with 5 points /options ranging from: Never to very often. The scale consists of both positive & negative items. The positive items in the scale are: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14. The negative items in the scale are: 12, 13, 15, 16, 17, 18, 19.

Scoring: For positive items Never carries 1 mark, rarely carries 2 marks, sometime carries 3 marks, often carries 4 marks and very often carries 5 marks. For negative items the score is reversed and Never carries 5 marks, rarely carries 4 marks, sometime carries 3 marks, often carries 2 marks and very often carries 1 marks, Hence For 1 item least possible score is 1 and maximum possible score is 5 so that for 19 items least possible score was 19 and maximum possible score was 95.

Socio-demographic Variables and Clinical characteristics

Age, Year of studying, Gender, religion, educational status of father, educational status of mother, Occupation of father, Occupation of mother, Type of family, Area of residence, Total no. of children in house, Family monthly income.

Data Analysis

Descriptive univariate statistics such as frequencies and percentages were used for categorical variables. Chi square test was used to find out the association between breakfast consumption habits and academic performance of adolescents with their selected socio demographic variables. Spearman's Rank order coefficient was used to find the correlation between breakfast consumption habits and academic performance of adolescents.

3. Results

a) Sample characteristics

The majority of adolescent's age 29% belongs to 15 Years, following this 27% in the age group of 16 Years, 27% 14 Years, 17% 13 Years age group. The majority of adolescent's 36% belongs to 8th standard, following this 33% from the 9th standard and 31% adolescents belongs to 10th standard. The majority of adolescent's 78% were Hindus, 13% were Christian Community, 9% adolescent's belongs Muslims & only 0% adolescents belongs to others category. The majority of adolescent's 58% are Male adolescent's and only 42% are female adolescents. The majority of adolescent's fathers 46% had primary education, 31% had no formal education, 18% adolescent's fathers have completed secondary education, 5% adolescent's fathers have completed degree & above. The majority of the adolescent's mothers 40% had secondary education, 33% had primary education, 20% adolescent's mothers had no formal education, 7% adolescent's mothers have completed degree & above. The majority of adolescent's fathers 42% were having business, 37% adolescent's fathers were agriculture, 16% adolescent's fathers were labor and 5% were the private employee. The majority of adolescent's mothers 40% were housewife, 24% adolescent's mothers having business, 23% adolescent's mothers were labor and 13% were agriculture. The most of the adolescents were 52% having Rs.5000-10000 family monthly income, 29% adolescents were having Rs.10001-15000 family monthly income, 14% had Rs.15001-20000 & 5% adolescents had 20001-25000 rupees Monthly income of their family. The most of the subjects 51% adolescents were from nuclear family and 49% were from joint family. The majority of subject's adolescents 58% were from rural area and only 42% were from urban area. The majority of subjects 46% parents had two children, 31% had one child 21% parents had 3 Children & only 2% parents had more than 4 children.

Table I: Frequency and Percentage distribution of socio-demographic variables of adolescents

Socio-demographic variables	Frequency	Percentage
1. Age of the child		
a) 13 years	17	17%
b) 14 years	27	27%
c) 15 years	29	29%
d) 16 years	27	27%
2. Year of studying.		
a) 8 th standard	36	36%
b) 9 th standard	33	33%
c) 10 th standard	31	31%
3. Religion		
a) Hindu	78	78%
b) Muslim	9	9%
c) Christian	13	13%
d) Others (specify)	0	0%
4. Gender of a child		
a) Boys	58	58%
b) Girls	42	42%
5. Fathers education qualification		
a) No formal education	31	31%
b) Primary	46	46%
c) Secondary	18	18%
d) Degree & above	5	5%
6. Mothers' education qualification		

a) No formal education	20	20%
b) Primary	33	33%
c) Secondary	40	40%
d) Degree & above	7	7%
7. Fathers' occupation		
a) Labor	16	16%
b) Business	42	42%
c) Agriculture	37	37%
d) employee	5	5%
8. Mothers' occupation		
a) Labor	23	23%
b) Business	24	24%
c) Housewife	40	40%
d) Agriculture	13	13%
e) Employee	0	0%
9. Family Monthly Income in Rs.		
a) 5000/-10000	52	52%
b) 10,001/-15000	29	29%
c) 15001-20000/-	14	14%
d) 20001/-25000	5	5%
e) 25001 & above	0	0%
10. Type of family		
a) Joint family	49	49%
b) Nuclear family	51	51%
11. Area of residence		
a) Rural	58	58%
b) Urban	42	42%
12. Total number of children in the family		
a) 1	31	31%
b) 2	46	46%
c) 3	21	21%
d) 4 & above	2	2%

b) Assessment of breakfast consumption habits by using likert scale

It is evident that the most subjects 60% adolescents have good breakfast habits, 38% adolescents had fair breakfast habits, 2% adolescents had very good breakfast consumption habits (Table 2).

Table 2: Frequency and Percentage distribution of adolescents based on their breakfast consumption habits

Range of scores	Breakfast consumption habits	Frequency	Percentage
25-50	Very poor	0	0%
51-75	Fair	38	38%
76-100	Good	60	60%
101-125	Very good	2	2%

c) Assessment of academic performance of adolescents by using rating scale.

It is evident that the majority of subjects 63% adolescents were having good academic performance whereas 33% had very good academic performance, 4% had fair academic performance (Table 3).

Table 3: Frequency and Percentage distribution of adolescents based on their academic performance

Range of Score	Academic performance	Frequency	Percentage
19-38	Very poor	0	0%
39-57	Fair	4	4%
58-76	Good	63	63%
78-95	Very good	33	33%

d) Association between level breakfast consumption habits with sociodemographic variables.

The table-4 shows that the calculated chi-square values for the socio-demographic variables like Age of the child, Year of studying, Religion, Gender of child, Mother's educational qualification, Father's occupation, Mother's occupation, Family monthly income, Type of family, Area of residence, Total no. of children in family are 2.952239, 0.759248, 3.683089, 0.693569, 0.78033, 0.020019, 1.050937, 0.37831, 0.748866, 3.683089 and 1.224117 respectively. The Chi square table value is 3.846. Hence the Chi square calculated values are lesser than the Chi square table value. This indicates that there was no significant association found between the above said selected socio-demographic variables with breakfast consumption habits. $P < 0.05$.

Hence, H_1 -(There will be association between breakfast consumption and selected socio-demographic variables) is rejected for above mentioned socio-demographic variables.

The calculated chi-square values for the socio-demographic variable is Father's educational qualification is 5.862047. The Chi square table value is 3.846. Here the Chi square calculated values are higher than the Chi square table value. This indicates that there was a significant association found between the above father educational qualification with breakfast consumption habits. $P < 0.05$.

Hence, H_1 -(There will be association between breakfast consumption and selected socio-demographic variables) is accepted for father educational qualification

Table 4

S. No.	Socio-Demographic variables	D. F.	Chi-square calculated value	Chi-square table value	Association
1	Age of the child	1	2.952239	3.846	No significant Association
2	Year of studying	1	0.759248	3.846	No significant Association
3	Religion	1	3.683089	3.846	No significant Association
4	Gender of child	1	0.693569	3.846	No significant Association
5	Father's educational qualification	1	5.862047	3.846	Significant Association
6	Mother's educational qualification	1	0.78033	3.846	No significant Association
7	Father's occupation	1	0.020019	3.846	No significant Association
8	Mother's occupation	1	1.050937	3.846	No Significant Association
9	Family monthly income	1	0.37831	3.846	No significant Association
10	Type of family	1	0.748866	3.846	No significant Association
11	Area of residence	1	3.683089	3.846	No significant Association
12	Total no. of children in family	1	1.224117	3.846	No significant Association

e) Association between academic performance of the adolescents with sociodemographic variables.

The table-5 shows that the calculated chi-square values for the socio-demographic variables like Age of the child, Religion, Gender of child, Father's educational qualification, Mother's educational qualification, Father's occupation, Mother's occupation, Family Monthly income, Area of residence and Total no. of children in family are 0.053163, 0.2838, 0.079417, 2.97091, 0.182631, 3.329363, 0.232728, 1.421846, 3.491013 and 1.2549 respectively. The Chi square table value is 3.846. Hence the Chi square calculated values are lesser than the Chi square table value. This indicates that there was no significant association found between the above said selected sociodemographic variables with academic performance of adolescents. $P < 0.05$.

Hence, H_2 -(There will be association between academic performance and selected socio-demographic variables) is rejected for above mentioned socio-demographic variables.

The calculated chi-square values for the socio-demographic variables are Year of studying & Type of family are 5.894291 & 5.255262 respectively. The Chi square table value is 3.846. Hence the Chi square calculated values are higher than the Chi square table value. This indicates there was a significant association found between the above said selected socio-demographic variables with academic performance of the adolescents. $P < 0.05$.

Hence, H_2 -(There will be association between academic performance and selected socio-demographic variables) is accepted for Year of studying & Type of family.

Table 5

S. No	Socio-demographic variable	D. F.	Chi-square calculated value	Chi-square table value	Association
1	Age of the child	1	0.053163	3.846	No significant association
2	Year of studying	1	5.894291	3.846	Significant association
3	Religion	1	0.2838	3.846	No significant Association
4	Gender of child	1	0.079417	3.846	No significant association
5	Father's educational qualification	1	2.97091	3.846	No Significant association
6	Mother's educational qualification	1	0.182631	3.846	No Significant Association
7	Father's occupation	1	3.329363	3.846	No significant association
8	Mother's occupation	1	0.232728	3.846	No significant association
9	Family monthly income	1	1.421846	3.846	No significant association
10	Type of family	1	5.255262	3.846	Significant association
11	Area of residence	1	3.491013	3.846	No significant Association
12	Total no. of children in family	1	1.2549	3.846	No significant Association

f) Co-relation between breakfast consumption habits with the academic performance of the adolescents

It is obtained by substituting the values of X and values Y in Spearman's rank orders formula. The score of likert score is put in X column and the score of rating score are put in Y column. Then substituted value in the formula. The r value obtained was 0.908071, Hence the association between the two variables would consider statically significant.

4. Discussion

The main objective of the present study was to find the relationship between the breakfast consumption habits and academic performance and researcher correlates the breakfast consumption habits with academic performance of the adolescents. Convenient sampling technique was used to select the study area, Proportionate stratified random sampling technique was used to select study participants. The study included a sample of 100 adolescents of Akhandeshwer high school, murnal RC Navanagar, Bagalkot.

The obtained chi-square values (5.862047) were more than the tabled values (3.846) and there was a statistically significant association found between resulted demographic variables (Father's educational qualification) with breakfast consumption habits of $P < 0.05$. Similar findings were found in A crossover design used to determine the effect on cognitive performance on eating, compared with omitting breakfast in elementary school children of Taiwan. A positive correlation was found between demographic variables (Father's educational qualification) with breakfast consumption habits of $P < 0.05$.

A significant association was found between resulted demographic variables (Year of studying, Type of family) with academic performance of $P < 0.05$. The obtained chi-square values (5.894291, 5.255262) were more than the tabled values (3.846). Similar findings were found in A cross-sectional population-based study was conducted to examine the relationship between mental distress, academic performance and regular breakfast consumption in All junior high schools in Oslo.

5. Conclusions

The study is helpful to find the relationship between the between breakfast consumption habits and academic performance of adolescents. A positive correlation between the between breakfast consumption habits and academic performance of adolescents. Future researches can investigate the effect of breakfast habits to improve the academic performance with the aim of improving their overall quality of education.

6. Ethical Clearance

Ethical clearance was obtained from the institutional ethical committee of BVVS Sajjalashree Institute of Nursing Sciences, Bagalkot.

7. Source of Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors

Conflict of Interest: Nil

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