Effectiveness of Video Assisted Teaching Program on Knowledge Regarding the Impact of Junk Foods on Obesity among School Age Children in a selected School, Bangalore, Karnataka, India

Sowmya. A.V

Asst.Professor, Dept.of Child Health Nursing

College of Nursing Sciences, Dayananda Sagar University, Kumaraswamy Layout, Bangalore-560078, Karnataka, India.
Email: sowmya-nsg@dsu.edu.in

Abstract: **Childhood obesity has escalated to an alarming proportion in the last twenty years. It is currently the most preventable nutritional disease of the 21st century. School aged children have well-defined food preferences and dislikes, preferring large amounts of sugar and starches while avoiding vegetables and protein foods. These years may signal for the appearance of obesity. This study was undertaken to evaluate the effectiveness of video assisted teaching program on knowledge regarding the impact of junk foods on obesity among school age children in a selected school at Bangalore. An evaluative approach was adopted and a quasi experimental one group pre-test post-test design was used for the study. 60 School age children (5th & 6th Standard) of Dayananda Sagar International School, Bangalore were selected by simple random sampling technique. The pre-test was followed by the implementation of video assisted teaching programme and post test was conducted after 7 days using the same structured questionnaire. The results were described by using descriptive and inferential statistical analysis. Results of the study revealed that the overall post test mean knowledge score 21.31 (85.26%) were significantly higher than the overall mean pre-test knowledge scores 8.63 (34.53%) and the computed paired't' value 34.48 is higher than the table value 3.46 at P<0.001 level. The overall findings of the study clearly showed that the video assisted teaching programme was significantly effective in improving the knowledge regarding the impact of junk foods on obesity among school age children.**

Keywords: **Impact, Junk food, Obesity, School age Children.**

I. INTRODUCTION

"Obesity; Silent Killer in India".

Over the last few decades, children worldwide have become taller, and in some countries also significantly heavier. Obesity in children has tripled in the past two decades and an alarming concern for us to take note of the fact. The world health organization describes the "escalating global epidemic" of obesity as "one of today's most blatantly visible yet most neglected public health problem" [1].

The obesity is the disease of the new millennium, because it affects about 300 million people in the world, and especially it has a high prevalence in children. One in four school children in Indian metros is overweight, so is one in six in non-metro cities. Around 20% of children show signs of obesity. Karnataka has 16.5% of obese children. Obesity is a significant risk factor for cardiovascular disease, diabetes mellitus type II, hypertension, problems of adaptation and relationship with other, lower self-esteem and depression [2, 3].

Good nutrition is essential to good health [4]. Eating a healthy diet helps in the prevention or management of several diseases [5]. Young children grow at a very fast pace. Their physical as well as mental growth depends largely on the food that is offered to them [6]. The relationship between dietary intake and obesity is complex, and dietary pattern analysis may offer new insight [7]. Although the mechanism of obesity development is not fully understood, it is confirmed that obesity occurs when energy intake exceeds energy expenditure. Childhood obesity is a recent epidemic with a high magnitude in India. Obesity has now been recognized as a disease, not just a cosmetic problem. Developing countries are now facing the double burden of childhood obesity [8].

It's the 21st century "junk food" has gone global. The reason for obesity is due to frequent intake of high-energy foods with minimal exercise. Healthy nutritious foods have been replaced by the new food mantra - JUNK FOOD! Junk food comprises of anything that is quick, tasty, convenient and fashionable. "Junk food" generally refers to foods that contribute lots of calories but little nutritional value. Problem with junk foods is that they are low in satiation value that is, people don't tend to feel as full when they eat them, which can lead to overeating. Another problem is that junk food tends to replace other, more nutritious foods [8].

Researchers also warn that children who are fed with junk food have lower IQ than their counterparts who ate nutritious food. Junk food may fill the stomach but can't provide the quality of energy which nutritious food provides. Junk foods are high in saturated fat and oil which leads to high cholesterol levels make you feel lazy and drowsy, resulting in lower concentration levels in children. Junk food decreases the efficiency which is important for children. Heart related diseases are growing with obesity and weight gain is normal for people on a junk food diet [9].

Nurses play a vital role in preventing childhood obesity by providing preventive education to child and parents. The most important strategies for preventing obesity are healthy eating behaviours, regular physical activity, and reduced sedentary activity. These preventative strategies are part of a healthy lifestyle that should be developed during early childhood. Parents and caregivers can help prevent childhood obesity by providing healthy meals and snacks, daily physical activity, and nutrition education. Healthy meals and snacks provide nutrition for growing bodies while modelling healthy eating behaviour and attitudes. Increased physical activity reduces health risks and helps weight management. Nutrition education helps young children develop an awareness of good nutrition and healthy eating habits for a lifetime [10]. Hence the researcher felt the need to educate the school children regarding the impact of junk foods on obesity in order to prevent it by creating awareness.

II.   OBJECTIVES OF THE STUDY

1. To assess the pre-test and post-test knowledge of school age children regarding the impact of junk foods on obesity.

2. To determine the effectiveness of video assisted teaching program on knowledge regarding the impact of junk foods on obesity among school age children.

3. To determine the association between pre-test knowledge scores of school age children with selected demographic variables.

III.   MATERIAL AND METHODS

A. Design, Setting and Sampling Technique

The research approach adopted for this study was evaluative approach, where the research design was quasi – experimental; one group pre test and post test design. The samples were 60 school age (5th & 6th standard) children of Dayananda Sagar International School, Bangalore. Simple random sampling technique was used to select the sample. The independent variable was the video assisted teaching programme. The dependent variable was the knowledge of school age children on impact of junk foods on obesity. The tool used for the study consists of 2 parts, Demographic data and structured questionnaire comprises of 25 questions.

B. Data Collection Procedure

The investigator gave self introduction, explained the purpose of the study and the subjects willingness to participate in the study was ascertained. The subjects were assured anonymity and confidentiality of information provided by them and a written informed consent was obtained. The pre-test was conducted, video assisted teaching programme was administered at the end of the pre-test and the post-test was carried out seven days later using the same tool as that of the pre-test.

C. Data Analysis

The data analysis was carried out through descriptive and inferential statistics. The basic statistical techniques such as mean, frequency, percentage of described demographic variables were computed and interpreted suitably. Chi square test was used to find out association between the knowledge and selected demographic variables.

D. Ethical Consideration

Permission was obtained from the ethical review committee of Dayananda Sagar College of Nursing and authorities of the Dayananda Sagar International School. Written and verbal consent also was provided to the study subjects. Subjects were instructed to read and sign the written consent which was attached with the questionnaire.

IV. RESULTS

Section   I: Finding of demographic variables of school age children.

60% of subjects were in the age group of >11-12years. Majority **53%** of them were males**, 50%** of subjects belonged to Hindu religion, **55%** were studying in 6th standard. Most **62%** of them were residing in urban area. Maximum number **85%** of the subjects consume mixed diet, **73%** of the respondent's father's education and **67%** of the respondent's mother's education was degree and above. Majority **60%** of the subject's father's occupation and **71.66%** of subject's mother's occupation was private employee. Most **90%** of the respondent's monthly family income was above Rs.30,000. Majority **80%** of them consume junk foods daily, **73%** of them had no previous knowledge on impact of junk foods on obesity. Most **18.33%** of the subjects got the information through Mass media (Table I).

TABLE I: DISTRIBUTION OF DEMOGRAPHIC VARIABLES AMONG THE RESPONDENTS (N=60)

Demographic variables	Frequency	%	Demographic variables	Frequency	%
1. **Age**			**9.** **Father's occupation**		
10-11 years	24	40	Govt. Employee	15	25
>11-12 years	36	60	Private employee	36	60
2. **Gender**			Self employee	9	15
Male	32	53	Daily wages	0	0
Female	28	47	**10.** **Mother's occupation**		
3. **Religion**			Govt. Employee	7	11.66
Hindu	30	50	Private employee	43	71.66
Muslim	18	30	Self employee	0	0
Christian	12	20	Daily wages	0	0
Others	0	0	House wife	10	16.66
4. **Educational level**			**11.** **Income of the family per month**		
5th std	27	45	Below 10,000	0	0
6th std	33	55	11,000-20,000	0	0
5. **Residence**			21,000-30,000	6	10
Urban	37	62	Above 30,000	54	90
Semi urban	23	38	**12.** **Consumption of junk foods**		
Rural	0	0	Daily	48	80
6. **Type of diet**			Alternative day	12	20
Vegetarian	9	15	Once in a week	0	0
Mixed	51	85	Once in a month	0	0
7. **Father's education**			**13.** **Previous knowledge**		
Illiterate	0	0	Yes	16	27
Primary education	0	0	No	44	73
Secondary education	9	15	**14.** **Source of information**		
PUC	**7**	12	Family members	2	3.33
Degree and above	44	73	Friends	0	0
8. **Mother's education**			Health personnel	3	5
Illiterate	0	0	Mass media	11	18.33
Primary education	2	3	No information so far	44	73.33
Secondary education	10	17			
PUC	8	13			
Degree and above	40	67			

Section II: Finding of respondents on pre test knowledge level on impact of junk foods on obesity.

Majority of school age children 88% (53) had inadequate knowledge, 12% (7) had moderate knowledge and none of them had adequate knowledge on impact of junk foods on obesity (Table II).

TABLE II: FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS ON PRE TEST KNOWLEDGE LEVEL ON IMPACT OF JUNK FOODS ON OBESITY (N=60)

Knowledge Level	Category	Frequency	Percentage
Inadequate	≤50% score	53	88
Moderate	51-75% score	07	12
Adequate	≥ 75% score	0	0
Total		**60**	**100**

Section III: Finding of respondents on post test knowledge level on impact of junk foods on obesity.

Majority of the school age children 90% (54) had adequate knowledge, 10% (6) had moderate knowledge and none of them had inadequate knowledge on impact of junk foods on obesity (Table III).

TABLE III: FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS ON POST TEST KNOWLEDGE LEVEL ON IMPACT OF JUNK FOODS ON OBESITY (N=60)

Knowledge Level	Category	Frequency	Percentage
Inadequate	≤50% score	0	0
Moderate	51-75% score	6	10
Adequate	≥ 75% score	54	90
Total		**60**	**100**

Section IV: Finding related to effectiveness of video assisted teaching programme in terms of comparison of pre test and post test knowledge scores regarding the impact of junk foods on obesity.

With regard to pre-test overall mean was 8.63 with standard deviation 2.27 and mean percentage of 34.53. With regard to the post-test, the overall mean is 21.31 with standard deviation 1.50 and mean percentage of 85.26. The t value was 34.48 at 0.001% level of significance which is greater than the table value of 3.46 which indicates the effectiveness of video assisted teaching programme on knowledge regarding the impact of junk foods on obesity (Table IV) (Figure I).

TABLE IV: COMPARISON BETWEEN THE PRE TEST AND POST TEST KNOWLEDGE LEVEL REGARDING IMPACT OF JUNK FOODS ON OBESITY.

| S. N.	Area wise knowledge scores of school age children	Max. scores	Pre test			Post test			Percentage of enhancement	t value	p value	Inference
			Mean	SD	Mean %	Mean	SD	Mean %				
1	General information	6	2.13	1.12	35.55	5.1	0.51	85	49.5	19.43	0.001	S
2	The effects of junk foods	10	3.41	1.43	34.16	8.61	1.07	86.16	52	21.44	0.001	S
3	Prevention and Management of Obesity	9	3.08	1.45	34.26	7.6	0.92	84.44	50.2	19.92	0.001	S
4	**Overall knowledge scores on impact of junk foods on obesity**	**25**	**8.63**	**2.27**	**34.53**	**21.31**	**1.50**	**85.26**	**50.7**	**34.48**	**0.001**	**S**
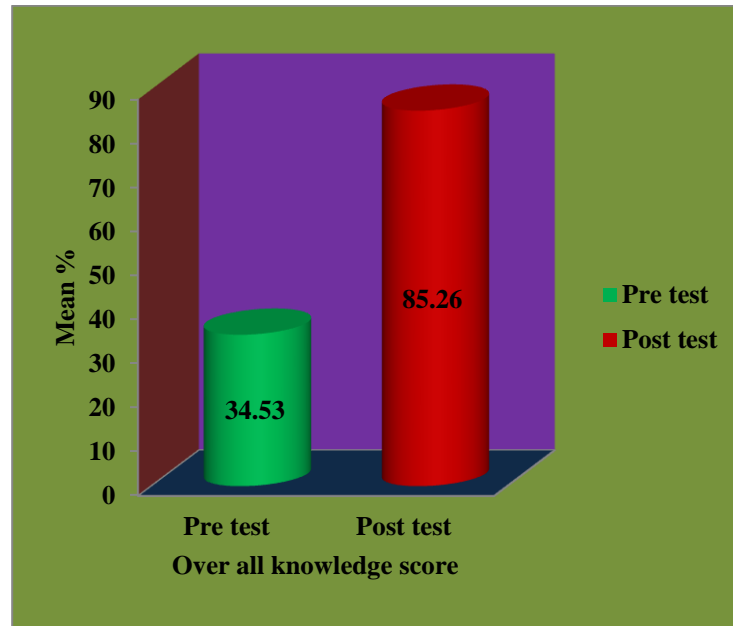
FIGURE I: MEAN PERCENTAGE DISTRIBUTION OF RESPONDENTS ON OVERALL PRE-TEST AND POST- TEST KNOWLEDGE LEVEL ON IMPACT OF JUNK FOODS ON OBESITY.

Section V: Data describing the association between pre test knowledge scores of respondents regarding impact of junk foods on obesity with selected demographic variables of the respondents

There was significant association with the demographic variables like father's education, mother's education and source of information and there was no significant association with the variables like age, gender, religion, educational level, residence, type of diet, father's occupation, mother's occupation, income of the family per month, consumption of junk foods and previous knowledge (Table V).

TABLE V: ASSOCIATION BETWEEN PRE-TEST KNOWLEDGE SCORE WITH SELECTED DEMOGRAPHIC VARIABLE.

Demographic variables	Categories	Pre-test knowledge scores on impact of junk foods on obesity		Chi-square value	Degree of freedom	p-value	Inference
		Inadequate	Moderate				
Age	10-11 years	21	3	0.027	1	>0.05	NS
	>11-12 years	32	4				
Gender	Male	27	5	1.042	1	>0.05	NS
	Female	26	2				
Religion	Hindu	27	3				
	Muslim	15	3				
	Christian	11	1	0.646	2	>0.05	NS
	Others	0	0				
Educational level	5th std	22	5	2.236	1	>0.05	NS
	6th std	31	2				
Residence	Urban	32	5				
	Semi urban	21	2		>0.05	NS	
	Rural	0	0	0.319	1		
Type of diet	Vegetarian	8	1	0.003	1	>0.05	NS
	Mixed	45	6				
Father's education	Illiterate	0	0				
	Primary education	0	0				
	Secondary education	9	0	7.699	2	>0.05	S
	PUC	6	1				
	Degree and above	44	0				

Mother's education	Illiterate	0	0				
	Primary education	2	0				
	Secondary education	10	0	13.448	3	>0.05	S
	PUC	6	2				
	Degree and above	40	0				
Father's occupation	Govt. Employee	12	3				
	Private employee	32	4	2.21	2	>0.05	NS
	Self employee	9	0				
	Daily wages	0	0				
Mother's occupation	Govt. Employee	5	2				
	Private employee	39	4				
	Self employee	0	0	3.816	2	>0.05	NS
	Daily wages	0	0				
	House wife	10	0				
Income of the family per month	Below 10,000	0	0				
	11,000-20,000	0	0	0.88	1	>0.05	NS
	21,000-30,000	6	0				
	Above 30,000	47	7				
Consumption of junk foods	Daily	44	4				
	Alternative day	9	3	2.587	1	>0.05	NS
	Once in a week	0	0				
	Once in a month	0	0				
Previous knowledge	Yes	14	2	0.015	1	>0.05	NS
	No	39	5				
Source of information	Family members	2	0				
	Friends	0	0				
	Health personnel	2	1	11.09	3	>0.05	S
	Mass media	10	1				
	No information so far	44	0				

V. DISCUSSION

Analysis of collected data revealed that 60% of subjects were in the age group of >11-12years. Majority 53% of them were males, 50% of subjects belonged to Hindu religion, 55% were studying in 6th standard. Most 62% of them were residing in urban area. Maximum number 85% of the subjects consume mixed diet, 73% of the respondent's father's education and 67% of the respondent's mother's education was degree and above. Majority 60% of the subject's father's occupation and 71.66% of subject's mother's occupation was private employee. Most 90% of the respondent's monthly family income was above Rs.30,000. Majority 80% of them consume junk foods daily, 73% of them had no previous knowledge on impact of junk foods on obesity. Most 18.33% of the subjects got the information through Mass media.

The first objective was to assess the pre-test and post-test knowledge scores of school age children regarding the impact of junk foods on obesity. The present study found that, the pre test knowledge level among 60 respondents, majority 88% (53) had inadequate knowledge score, 12% (7) had moderate knowledge score and no subject had adequate knowledge. The overall mean value was 8.63 with standard deviation 5.23. Whereas the post-test knowledge scores revealed that, majority 90% (54) had adequate knowledge score, 10% (6) had moderate knowledge and no subject had inadequate knowledge. In the post- test the overall mean value was 21.31 with standard deviation 1.5. Findings of other studies [11-14] also revealed the impact of junk foods on obesity.

The second objective of the study was to determine the effectiveness of video assisted teaching program on knowledge regarding the impact of junk foods on obesity among school age children. The overall post test mean score was 21.31 (85.26%) with standard deviation 1.5. and the respondents post-test knowledge score were significantly higher than the mean pre-test knowledge scores 8.63 (34.53%) with standard deviation 2.27 and computed area wise paired 't' value for the first area was 19.43, t- value for the second area was 21.44 and t- value for the third area was 19.92. All the above t-values were greater than the table value of 3.46 which indicates the area wise effectiveness of the video assisted teaching programme on knowledge regarding impact of junk foods on obesity. The overall 't' value was 34.48 which is higher than table value 3.46, which shows that the video assisted teaching programme was effective at $P<0.001$ level. The study result

revealed that the video assisted teaching programme was effective in terms of gain in knowledge of school age children regarding impact of junk foods on obesity. Bowman et al also recommended health education program to prevent Childhood obesity [15].

The third objective was to determine the association between pre-test knowledge scores of school age children with selected demographic variables. Chi-square was computed to find the association between selected demographic variables with pre test knowledge scores of school age children on impact of junk foods on obesity, which shows there was significant association with the demographic variables like father's education with computed χ^2=7.699 at 2df, mother's education with computed χ^2=13.448 at 3df and source of information with computed χ^2=11.09 at 3df with pre test knowledge scores at P >0.05 level of significance. The study also revealed that there was no significant association with the variables like age with computed χ^2=0.027 at 1df, gender with computed χ^2=1.0425 at 1df, religion with computed χ^2=0.646 at 2df, educational level with computed χ^2=2.236 at 1df, residence with computed χ^2=0.319 at 1df, type of diet with computed χ^2=0.003 at 1df, father's education with computed χ^2=1.642 at 2df, mother's education with computed χ^2=2.235 at 3df father's occupation with computed χ^2=3.846 at 2df, mother's occupation with computed χ^2=1.866 at 2df, income of the family per month with computed χ^2=1.025 at 1df, consumption of junk foods with computed χ^2=0.324 at 1df and previous knowledge with computed χ^2=0.013 at 1df and with pre test knowledge scores at P >0.05 level of significance. The results are in consistent with Raja et al [16].

VI.   CONCLUSION

The overall findings of the study clearly showed that the school age children's knowledge level improved after implementation of the video assisted teaching programme on impact of junk foods on obesity. The study concludes that the video assisted teaching programme is an effective method in providing moderate to adequate level of knowledge regarding impact of junk foods on obesity to the school age children.

Recommendations:

1. The study can be replicated on a larger sample; thereby findings can be generalized for a larger population.

2. A study can be conducted to assess the knowledge level of adolescents on impact of junk foods on obesity.

3. A study can be conducted to compare the knowledge and practice of consuming junk foods and its ill effects among school age children.

4. An experimental study to evaluate the effects of consuming junk foods on obesity can be conducted among school age children.

5. The comparative study can be conducted on school age children of urban schools and rural schools.

6. Pamphlets, Manuals, information booklets and self-instruction module can be prepared and distributed among the school age children to get awareness about impact of junk foods on obesity.

Implications:

In the light of the above findings the implications are drawn in the areas of nursing practice, nursing education, nursing administration, and nursing research.

Nursing Practice: Nurse as a competent health professional has the responsibility to promote, prevent and restore the health of the people. Now a day's children are weighing more than the normal for their age, because they prefer outside foods like pizza, burger than the home made foods. Parents are also sending junk foods for their snacks. Due to this children are suffering from obesity and related diseases like Type-II diabetes, cardiovascular problems etc. As a paediatric nurse it is our vital role to care the children. So the nurses have to educate the children as well as the parents regarding the impact of junk foods on obesity in order to enhance the knowledge and prevent obesity; thereby we can improve the quality of life and academic performance of children. Posters can be displayed in the paediatric units regarding junk food induced obesity. This will give awareness to children and parents.

Nursing Education: The nursing student should be aware of their responsibility to focus on the growing problem among paediatric age group. The curriculum should have a focus on obesity and junk food induced obesity. It helps the students to have in depth knowledge and to give education to children regarding the impact of junk foods on obesity when they are posted in the clinical and community area. The present study helps the community and school health nurse to plan for the health education programme.

Nursing Administration: Nurses are challenged to play the role of efficient administrators as well as practitioners. Administration in both private and government sectors should take initiative action to update the knowledge of health personnel regarding the impact of junk foods on obesity by in-service education. A nurse administrator plays a vital role in providing adequate supply of audio visual aids for conducting awareness programmes and posters can be displayed in schools and paediatric wards regarding junk food induced obesity and its prevention.

Nursing Research: The importance of research in nursing is to build the body of knowledge. The findings of the present study serve as the basis for the professionals and the students to conduct further studies. In depth research studies on children regarding the impact of junk foods on obesity and its prevention can be conducted in a large scale to reduce the incidence and risk for obesity related health problems.

REFERENCES

[1] Soumita Majumdar, "No play makes them couch potatoes", 2012 Nov 20, 14:14 IST, Daily News and Analysis, India.

[2] Times of India, One in 4 school kids in metros obese; Survey 2012 Nov 20.

[3] A.Parthasarathy, MKC Nair, PSN Menson. IAP Textbook of Pediatric, 3rd edition, (2007) Jaypee Brothers Publications, New Delhi, Page no: 722 to 724.

[4] Healthy Living and Nutrition, Healthy child.org, American Academy of Pediatrics [Cited 2013 Jan 4]; http://www.healthychildren.org/english/healthy-living/nutrition/pages/default.aspx.

[5] Nutrition and Health Issues, University of Nebraska-Lincoln, [Cited 2012 Dec 6]; http://food.unl.edu/web/fnh/issues.

[6] Children's Health, Nutrition for kids; Guidelines for a Healthy Diet, Mayo Clinic NU00606.

[7] R.K Agarwal, Childhood Obesity; Emerging Challenge, Indian Pediatrics, Volume 45-June 17, 2008.

[8] Elaine Magee, Are you a junk-food junkie? Here's what you need to know, WebMD Weight Loss Clinic - Expert Column.

[9] North stone K, dietary patterns in Childhood associated with IQ at 8 years of age? A population-based cohort study" Journal of Epidermal Community Health 2011: DOI 100.1136/JECH.2010,111955.

[10] Nauta C, Byrne C, Wesley Y. School nurses and childhood obesity: An investigation of knowledge and practice among school nurses as they relate to childhood obesity, Issues in Comprehensive Pediatrics Nursing. 2009; 32(1):16-30.

[11] Kuriyan R, Bhat S, Thomas T, Vaz M, Kurpad AV, Television viewing, fast food and sleep are associated with overweight among urban and semi-urban South Indian children, Nutrition Journal, 2007 Sep 20;6:25

[12] Mushtaq MU, Gull S, Mushtaq K, Shahid U, Shad MA, Akram J, Dietary behaviors, physical activity and sedentary lifestyle associated with overweight and obesity, and their socio-demographic correlates, among primary school children. International Journal of Behavioral Nutrition and Physical Activity, 2011 Nov 25;8:130.

[13] St-Onge MP, Keller KL, Heymsfield SB, Changes in childhood food consumption patterns; a cause for concern in light of increasing body weights, American Journal of Clinical Nutrition, 2003 Dec;78(6):1068-7.

[14] Lundwig D, Peterson K, Gortmaker S, A prospective, observational analysis on relationship between consumption of sugar-sweetened drinks and childhood obesity, Lancet 2001,358;505-508.

[15] Bowman SA, Gortmaker SL, Ebbeling CB, Pereira MA, Ludwig DS, Effects of fast-food consumption on energy intake and diet quality among children in a national household survey, 2004 Jan;113(1 Pt 1):112-8.

[16] Raja Y A, Mohana M A, a cross-sectional study on overweight and obesity among public and private school children at Samas city, Ann, Nulr Metab, 2005. 49(5): 342-45.