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EDITORIAL

This January, 2009 issue of "Research Reach" brings to the readers an interesting blend of research articles contributed by researchers from the departments of Food Science & Nutrition, Human Development and Extension/communication in Home science colleges across India. A major lifestyle change in population groups in India, notably urban India, has been the dietary shift from well balanced traditional diets to one that is characterized by a predominance of high energy, high fat, high sugar, micronutrient deficient diets. All the three nutrition papers included in this volume have addressed aspects of this issue. While the paper by Leon & Kumari quantifies the consumption of fast foods by adolescent girls in Ernakulum, the other two papers by Santhanalakshmi & Rai et al explore the association of present day dietary features with nutritional status in adolescents and occurrence of breast cancer in women. The under representation of women in the political scenario is a major factor responsible for their diminished status in several sectors including the health sector. The paper by Pandya & Shukla analyzes the likely reasons for this lowered participation of women in politics in India and presents the suggestions given by politically active women in Vadodara district to improve the involvement of women in the political process. Research in child development has documented the benefits of home-school partnership in fostering student learning and development in schools. The research paper from the human development department of our institute by Rege & Almeida identifies the barriers to this process in the Indian context. The paper also summarizes the recommendations of experts to enhance this home school partnership in Indian schools.

We have continued our efforts to include quality research articles from all domains of Home Science and its related fields and would greatly appreciate your contributions towards the same.

Authors kindly note: the format specifications provided in the next page, that have now been made more explicit & user friendly.

Chief Editor,

Dr. Malathi Sivaramakrishnan.

INSTRUCTIONS TO THE AUTHORS

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The format of the journal includes (using **Font- Times New Roman 12**):

1. Review paper on specific topics of current trends pertaining to Home Science. It should be a mini review with around 15-18 typed pages.
2. Research papers with a maximum of 7-14 pages
3. Research notes limited to a maximum of 2-6 typed pages
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The article should cover:

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EFFECT OF SOFT DRINK AND MILK CONSUMPTION ON THE NUTRITIONAL STATUS OF YOUNG ADOLESCENTS (15-18 YEARS)

M.S.Santhanalakshmi **, Pooja Venugopalan, Gowri Ramesh*

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The objective of this study was to assess the effect of soft drink and milk consumption on the nutritional status of young adolescents (boys and girls) in the age group of 15-18 years. 200 subjects were randomly selected from different schools and colleges in Chennai city and were classified into the following groups: Group I (consuming only soft drinks), Group II (consuming both soft drinks and milk), Group III (consuming only milk). A questionnaire was used to elicit information on physical activity, health history and frequency of consumption of calcium rich foods, 24-hour dietary recall was used to calculate the nutrient intake and anthropometric measurements were recorded in all subjects. Bone mineral density was estimated in 24 subjects (12 per sex) from groups III and I. Results showed that soft drink consumption was high among adolescent girls (48.5 % consumed 250ml soft drinks/ day) when compared to boys (26 % boys consumed 250ml soft drinks/ day). There was no incidence of osteoporosis or arthritis among all subjects but a small percentage of bone related disorders was reported among the parents. It was found that boys (72%) were more physically active than girls (54.5 %). Calorie intake was higher in both sexes from groups II and I. A lower calcium intake was noted among girls from these groups. Bone mineral density measurements revealed a significant difference in girls ($p > 0.01$) but not in boys. Adolescent girls from both groups III and I (33.33 % in both groups, respectively) had a low bone mineral density level when compared to adolescent boys, where none showed low bone mineral density levels.

There is a growing concern in the medical and scientific communities about the harmful effects associated with the consumption of carbonated soft drinks. Soft drinks have been around in the world for over 100 years, but many of their deleterious effects on health have not been studied or known (Johnson et al, 1992).

There has been an increased consumption of soft drinks among adolescents, this tends to replace milk and other dairy based nutrient beverages in their diet. This also depletes their nutrient stores, especially calcium. A very serious effect of soft drinks on people's health is the correlation between soft drink consumption and the increased risk of bone fractures and osteoporosis. The large amounts of sugar, bubbles caused by carbon dioxide, and phosphoric acid that are found in soft drinks remove nutritious minerals from bones, allowing bones to become weak and increasing the risk for fractures. This is done by the phosphoric acid disrupting the calcium-phosphorous ratio, which dissolves calcium from the bones (Nylund, 2002). Just one bottle of soft drinks a day for three months is enough to cause serious damage to bones (Jaideep, 2005).

When people consume soft drinks instead of necessary beverages like milk, they do not receive enough nutrients, especially calcium. This deficiency in calcium intake and increased consumption of soft drinks is a greater problem for women than for men. The discrepancy between genders is because, men traditionally eat more calcium rich foods and consume more milk than their female counter parts, so soft drinks do not have as profound an effect on men as on women (Nylund, 2002). Moreover, the high consumption of carbonated beverages and the declining consumption of milk are of great public health significance for girls and women, as they are prone to osteoporosis in later life (Dr. Georgiou, 2000)

Soft drinks are not only a major cause for obesity and bone softening, but also for dental carries, diabetes, liver disorders and gastric acidity. Dr. Charles Best, the discoverer of insulin, claims that teenagers who consume too many soft drinks have cirrhosis of the liver similar to what chronic alcoholics have (Doxat J, 1973). Thus, this study was conducted to assess the effect of soft drinks and milk on the nutritional status of adolescent boys and girls.

MATERIALS AND METHODS

Design of the study

This was an exploratory and experimental study, conducted on two hundred adolescent girls and boys aged 15-18 years, who were randomly selected from different schools and colleges in Chennai city. A survey was first conducted to assess their consumption of soft drinks and milk, after which the subjects were classified into the following three groups:

- Group I - subjects who consumed only soft drinks
- Group II - subjects who consumed both soft drinks and milk
- Group III - subjects who consumed only milk.

A sub-sample of twelve subjects from both sexes of Group III and I were randomly selected for estimating the bone mineral density. This study was conducted after being approved by the independent ethics committee, Women's Christian College, Chennai-6.

Tools Used For the Study

▪ Questionnaire:

A questionnaire was formulated to elicit information regarding health history, physical activity pattern and frequency of consumption of calcium rich foods from all the subjects.

▪ Dietary Assessment:

The dietary pattern of all subjects was assessed using a 24-hour dietary recall on three separate days. The assessment was done using standardized measuring cups, spoons, ladles and mugs; food containers such as the bowls, juice boxes, water bottles, plates and cartons; photographs; geometric shapes and numbers. The various food preparation methods, recipe ingredients, brand name of commercial products and use of dietary supplements were also considered. Nutrients such as energy, protein, fat, calcium and phosphorus in their diet were calculated and compared with the recommended allowances for that age group (Gopalan et al, 1989). The frequency of consumption of calcium rich foods, milk beverages and soft drinks was recorded among all subjects using an interview schedule.

▪ **Anthropometric Measurements:**

Anthropometric measurements such as height, body weight and waist circumference were recorded in all subjects and body mass index was calculated.

1. **Body Weight:** Body weight measurement was taken using a portable weighing scale to the nearest 0.5 kg. The subjects were weighed bare foot with normal clothing.

2. **Height:** A standard flexible, non-stretchable measuring tape was used to measure the height of the subjects. It was fixed firmly to the wall. The subjects were made to stand (without shoes and socks) with heels together. The back was flattened against the wall until the back of the head touched the wall. The height was measured to the nearest 0.5cm.

3. **Body Mass Index:** The body mass index (BMI) was calculated using the following formula: -

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

4. **Waist Circumference:** A standard flexible, non-stretchable measuring tape was used to measure the waist circumference of the subjects. The measuring tape was placed on the waist and the measurement taken. The waist circumference was measured to the nearest 0.5cm. (Shils EM, 1999)

▪ **Biochemical Assessment:**

Bone mineral density (BMD) was assessed using DEXA (Dual Energy X-ray Absorptiometry) scanning procedure in Dr. Soundarapandian Bone and Joint Hospital, Chennai-40. Twenty-four subjects (twelve girls and twelve boys) from Groups I and III were randomly selected for the estimation. Group II subjects were not included for the bone mineral density test due to financial constraints.

Statistical Analysis

The data was analyzed using 't-test' for independent samples and ANOVA for comparison of means between the three groups. The arithmetic mean and the percentage distribution index of all parameters included in the questionnaire and interview schedule were analyzed. Data was rigorously scrutinized for errors and lack of consistency.

RESULTS AND DISCUSSION

Milk and Soft drink consumption pattern among the subjects

The pattern of consumption of milk and soft drinks among all two hundred subjects was found to be as follows:

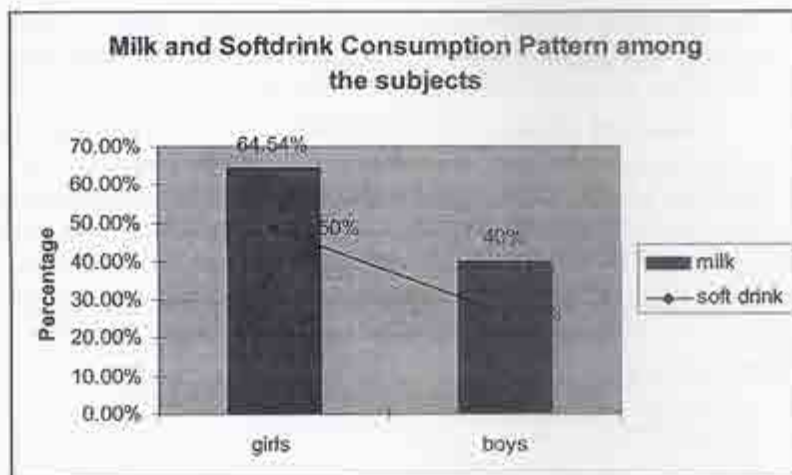


Figure 1: Milk and Soft drink consumption pattern among the subjects

64.54 percent girls and 40 percent boys consumed 200 ml milk/ day and 48.5 percent girls and 26 percent boys consumed 250ml soft drinks/ day (Figure 1). It was also found that 36.4 percent girls and 53 percent boys consumed coffee daily among other preferred milk beverages. 20 percent girls and 9 percent boys consumed soft drinks in pet bottles twice a week and 6.4 percent girls and 7 percent boys consumed soft drinks daily during teatime. 57.3 percent girls and 53 percent boys cited good taste as a reason for their consumption of soft drinks.

Consumption pattern of Calcium rich foods among the subjects

The pattern of consumption of calcium rich foods among all subjects is depicted in the figure 2 below:

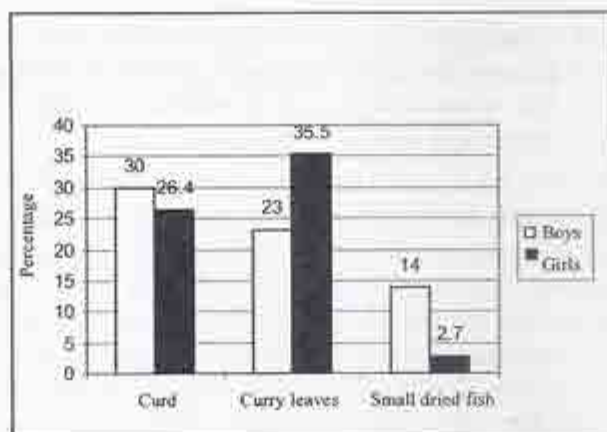


Figure 2: Calcium rich foods consumption pattern among the subjects

It was found that 30 percent boys and 26.4 percent girls consumed curd, 35.5 percent girls and 23 percent boys consumed curry leaves and 14 percent boys and 2.7 percent girls consumed small dried fish on a daily basis. Ragi, one of the rich sources of calcium, was found to be consumed by all subjects only on a monthly basis.

Physical activity pattern among subjects

Table 1: ANOVA results for physical activity pattern among all the subjects

Physical activity pattern	Gender	Group	Mean squares	F value	Level of significance
Exercise	Boys	Between groups	0.029	0.144	Not Significant
		Within groups	0.198		
	Girls	Between groups	0.072	0.077	Not Significant
		Within groups	49.892		

From the above table it was found that the exercise pattern of subjects from the three groups did not differ significantly and on studying the exercising regularity of the subjects it was found that 72 percent boys exercised regularly while majority of girls (54.5 percent) performed no regular exercise.

10 and 12 percent of girls and boys respectively attended after school and college classes especially coaching classes, which normally lasts for 60 to 120 minutes. This compromises on their time for outdoor activities and games. This kind of sedentary activity compounds the problems associated with over weight/obesity.

Nutrient intake among subjects from the three groups

Table 2: ANOVA results for nutrient intake among subjects from the three groups

Nutrient	Group	Mean squares		F value		Level of significance	
		Male	Female	Male	Female	Male	Female
Energy	Between groups	65971.193	75291.131	2.487	3.009	N.S	S*
	Within groups	26530.595	25019.760				
Protein	Between groups	10.738	21.319	0.517	1.039	N.S	N.S
	Within groups	20.784	20.526				
Fat	Between groups	3.874	9.255	0.671	1.719	N.S	N.S
	Within groups	5.774	5.383				
Calcium	Between groups	304.631	4142.841	0.361	7.181	N.S	S*
	Within groups	844.074	576.892				
Phosphorus	Between groups	1287.737	763.823	0.570	0.289	N.S	N.S
	Within groups	2260.117	2644.579				

S* - Significant at 5 per cent level; N.S- Not Significant

Mean nutrient intake of the 3 groups was compared with the recommended daily allowances (RDA) pertaining to that age group (Gopalan et al, 1989). It was found that subjects from group I

(boys-2526kcal/d and girls-2179 kcal/d) and group II (boys-2450kcal/d and girls-2185 kcal/d) consumed more calories. The calcium intake in girls (group I-443mg/d, group II-460mg/d and group III-471mg/d) was found to be less than the RDA (500mg/d). The nutrient intake of group III subjects of both sexes was found to be closer to the RDA. When nutrient intake levels between female subjects from 3 groups were compared, there was a significant difference in energy ('F' value-3.009) and calcium ('F' value-7.181) levels among the subjects. There was an increased energy and low calcium intake among subjects from groups II and I when compared with group III subjects.

There was no statistically significant difference in the phosphorus intakes between the groups (Table 2). Phosphorus present in cereals and legumes are available to a lesser extent (as it is present in the form of phytic acid) than that present in milk, meat, eggs and fish. In view of this, phosphorus requirements of persons consuming predominantly cereal-based diets will be greater than those consuming large quantities of milk, meat, fish and eggs. The optimal Ca: P ratio for infants and children is 1:1. The Ca: P ratios of diets consumed in different countries vary widely from 1:1.5 to 1:3 (Swaminathan, 1985). Although individual needs vary, girls consume fewer kilocalories than boys. Sometimes the larger appetite characteristic of this growth period leads adolescents to satisfy their hunger with snack foods that are high in sugar and fat and low in protein (Srilakshmi, 2002).

Comparison of mean anthropometric measurements between group I, II and III:

The comparison of the mean anthropometric measurements (body weight, body mass index and waist circumference) of subjects from Groups I, II and III is presented in, Table 3 below:

Table 3: ANOVA results for anthropometric measurements between group I, II and III

Anthropometric measurements	Group	Girls			Boys		
		Mean squares	F value	Level of significance	Mean squares	F value	Level of significance
Body weight (kg)	Between groups	77.507	0.867	N.S.	318.629	3.229	S*
	Within groups	89.415			98.669		
Body Mass Index	Between groups	7.564	0.559	N.S.	39.866	3.260	S*
	Within groups	13.537			12.230		
Waist circumference (cm)	Between groups	98.167	0.999	N.S.	216.972	3.828	S*
	Within groups	98.252			56.680		

S*- significant at 5 per cent level; N.S- Not Significant

From the above table, it was found that there was a significant difference between the body weight, body mass index and waist circumference among male subjects from groups II and I when compared with group III subjects, but there was no significant difference in the anthropometric measurements among the female subjects.

Body Mass Index (BMI) is positively associated with consumption of carbonated beverages and negatively associated with consumption of citrus juices. (Forshee et al, 2003).

Comparison of Bone mineral density level

While there is no precise measure of bone strength, bone mineral density (BMD) is a measurement of bone mass and is believed to account for approximately 70% of bone strength. In 1994, the World Health Organization (WHO) Study Group selected BMD measurement as the basis for the diagnosis of osteoporosis. Bone mineral density is expressed in the form of T-scores or Z-scores, as opposed to absolute measurement values. A Z-score is defined as the number of standard deviations above or below the average bone mineral density of age and gender-matched controls. The WHO identified the following diagnostic categories based on bone mass measurement at any skeletal site in white women, the normal being the Z-score above -1.0. If the score is between -1.0 and -2.5 it denotes osteopenia in the individuals and below -2.5 denotes osteoporosis (Shanahan, 1995).

Bone mineral density level was estimated in selected subjects from groups III and I. There was a significant difference between the bone mineral densities of girls when compared with boys. 50 per cent of girls from group I were found to have lower bone mineral density than boys from groups III and I. There was no significant difference in the levels between boys from both groups. This is presented in table 4.

Table 4 : The mean bone mineral density levels of girls and boys from group III and I

Group	Mean (g/cm ²) and standard deviation		*t* value		Level of significance	
	Girls	Boys	Girls	Boys	Girls	Boys
Group III	0.7±0.06	0.7±0.0072	5.329	0.4286	S*	N.S.
Group I	0.78±0.14	0.78±0.027				

S* : Significant at 1 percent level, N.S.: Not Significant

Consumption of cola beverages was positively associated with bone fractures among girls from 9th and 10th grade, (aged 8 to 16 years); and in children aged 7 to 14 years. Consumption of 7 or more cans or bottles of cola beverages per day resulted in a statistically significant increase in bone fractures in girls younger than 17 years (Wyshak, 2000).

SUMMARY AND CONCLUSION

On summarizing the study, it was found that there is an increased consumption of soft drinks among adolescent boys and girls. The number of soft drinks consumed by adolescent girls was more when compared with boys. There was no incidence of osteoporosis or arthritis cited by the subjects but a small percentage of bone related disorders was observed among mothers of male subjects. The boys were found to be physically more active than girls. Calcium intake was found to be higher in boys but less in girls when compared with the RDA of both sexes, respectively. It was found that there was a significant difference between body weight, body mass index and waist circumference among male subjects from groups II and I when compared with group III

subjects, but there was no significant difference in the anthropometric measurements among the female subjects. A significant difference in the bone mass density of girls from groups III and I was observed whereas no significant difference was seen in the bone mass density of boys from these two groups.

Thus it was found that there is an increasing consumption of soft drinks and decreasing consumption of milk among adolescent boys and girls. If this consumption pattern is practiced further, it may lead to obesity and osteoporosis. Thus substituting milk with soft drinks can have a deleterious effect on the nutritional status of adolescent boys and girls. The study sums it all up as, "feed your bones to fend your life".

REFERENCES

- Doxat J (1973) *The Book of Drinking*. London. The Hamlyn publishing Group Ltd; pp 108 – 135.
- Dr. Georgiou. Soft drinks are killing our kids. Natural Medicine Newsletter. Issue published August 2000.
- Dr. Shanahan K (1995) Women's Health- Health & Well-Being Experts.
http://www.ivillage.com/Health&Well-Being_Experts/Women's_Health
- Forshee RA and Storey ML (2003) Total beverage consumption and beverage choices among children and adolescents. *International Journal of Food Science and Nutrition*, 54 (4): 297-307.
- Gopalan C, Rama Shastri BV and Balasubramaniam SC (1989) Nutritive Value of Indian Foods. Hyderabad. National Institute of Nutrition. pp 94.
- Jaideep M (2005) "Bubbly at center of soft bones." Hindustan Times, 12 June 2005.
http://www.google.com/soft_drinks/bubbly_at_center_of_soft_bones
- Johnson CC, Miller JZ, Siemenda CW, Ruster TK, Hui MS, Christian JC and Peacock M (1992) Calcium Supplementation and increases in the bone mineral density in children. *New England Journal of Medicine*, 329: 82-87 as cited by Wardlaw, M.G. (1993) Putting osteoporosis in perspective. *JADA*, 93: 1001-1006.
- Nylund J (2002) The harmful effects of soft drinks. *Journal of Clinical Investigation*, 123:331.
- Shils E Maurine (1999) *Modern Nutrition in health and disease*. Ed 9. Lippincott William and Wilkins Stanfield publishing (1992) pp 1420.
- Wyshak G (2000) Teenaged girls, carbonated beverage consumption and bone fractures. *Arch. Pediatr. Adolesc. Med.*, 154: 610-613.
- U.S. Department Of Health And Human Services Centers for Disease Control and Prevention National Center for Health Statistics, *Measuring Guides for the Dietary Recall Interview* MD, Hyattsville,
http://www.cdc.gov/nchs/about/major/nhanes/measuring_guides_dri/measuringguides02.htm

***"Fast Food"* CONSUMPTION AMONG ADOLESCENT GIRLS IN ERNAKULAM**

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Fast food consumption has become a prominent feature of the adolescent lifestyle. The consumption of fast food is on the rise and will continue to rise exponentially. No data is available on the fast food consumption pattern among adolescent girls. So, fast food consumption among adolescent girls is one of the important issues of concern in the area of adolescent healthcare. The main objectives of the present study were to assess the extent of fast food consumption and to find out the factors influencing it. A pilot study was conducted to identify the target population. Proportionate stratified random sampling was used to identify the participants. A pre-tested, semi-structured questionnaire was used to elicit detailed information regarding the fast food consumption pattern and factors influencing the fast food consumption. The study showed that majority of adolescent population consumed fast food regularly. In most cases the participants were introduced to fast foods by their parents and friends. Bakeries, street vendors, and shops near school were the favorite outlets adolescents chose for consuming fast food. The reasons for consuming fast foods, according to the participants, were easy availability, variety, and taste. Consumption of fast foods could result in serious health problems and steps should be taken to increase the awareness of the adolescents regarding the health hazards of fast food consumption and the importance of a healthy diet and lifestyle.

Adolescence is a period of marked changes, a period during which the individual rapidly undergoes a series of sequential physical and mental changes that transform a small child into a young adult. Fast foods have become a prominent feature of the diet of adolescents throughout the world. The consumption of fast food is on the rise and if current trends are to be believed, then it will continue to rise exponentially in future. The consumption of fast food without any restrictions is causing many health problems like obesity, increased cardiovascular risk, anemia, mental disorders, behavioral problems, etc. (Bezharuah, 2003). It has become a prelude to public health disaster that will have to be dealt within the new millennium. Consideration should be given to the impact these foods have on the diets of the teens now and also on the lifelong eating habits they develop. The incidence of dietary inadequacies is higher in adolescence than at any other stage of the lifecycle and it affects girls more than boys (UNFPA, 2003). The adolescent girls are also more at risk than their male counterparts because of the differences in nutritional requirements, growth rates, psychological, physiological and other biological factors (Singhal and Rao, 2004). So, there is an urgent need for screening fast food practices among adolescent girls to estimate its consumption and to design early intervention programs to fight this escalating menace

To reduce fast food consumption, the first step is to find out what makes them attractive for adolescents'. Only after finding out the cause, one can find the solutions for the problem. This research is intended to find out the extent of fast food consumption and the factors that influence its consumption among adolescent girls. There are not many studies conducted in this area, especially in India. Also most of the studies that have been conducted focused on the factors influencing the fast food consumption among the general population and were not specifically targeted at adolescent girls.

Given the persuasive influence of commercialism in the lives of young consumers and their increasing purchasing power, special efforts are required to help them make informed choices and purchases. Therefore the adolescents must be educated about the health hazards of fast foods and should be made aware of the importance of having healthy meals.

Today's adolescent girls are tomorrow's women and mothers and their health is of paramount importance to the future generation and to the nation and hence this forms the rationale for the present study

The objectives of the study were:

1. To determine the extent of fast food consumption among adolescent girls
2. To study the nutrient intake among adolescent girls
3. To find out factors influencing the fast food consumption

MATERIALS AND METHODS

For the purpose of this study "fast food" was defined as food that is quick and convenient, low in nutritional quality, high in saturated fat, high in sodium and sugar content, low in fiber, low in vitamins and minerals, not made at home, contains artificial colors and flavoring agents, and are processed or semi-processed

In order to identify the target population for the research a pilot study was conducted. The pilot study was conducted among the adolescent girls aged between 13 and 18 from eight different educational institutions in Ernakulam district. The total number of the students selected for the pilot study was 5672. The results of the pilot study were then analyzed. Out of the total students in the target population—students who consumed fast food items at least 3 times in a week (3302) were identified. The target population of 3302 was divided into three income groups and three age groups and proportionate stratified random sampling method was used for selecting the participants. The sample size was 554.

A semi-structured pre-tested interview schedule was administered to collect information on fast food habits, factors influencing *fast food* consumption, and frequency of consumption of *fast food*. Dietary recall for three consecutive days and a food frequency questionnaire (FFQ) were used for getting the relevant information for dietary analysis. The FFQ was developed using the basic five food groups—(1) whole grains, cereals, and cereal products (2) pulses and legumes (3) milk, fish, and meat (4) fruits and vegetables, and (5) fats and sugar. A set of standardized measuring instruments like cups, spoons, bowls, etc. were used to gather accurate and quantifiable recalls. These results were cross-verified with the information from the FFQ to

establish the accuracy of the data gathered. Data was collected through personal interview of the participants.

RESULTS AND DISCUSSION

The participants were classified based on their income and age. In the age-wise classification majority of the participants (48%) were from the 17 and 18 age group. Middle income group (annual household income above Rs.1, 00,000 and below Rs. 2, 50,000) dominated the sample as they constituted 57%. The percentage of low income (annual income less than Rs. 1,00,000) participants was 26% and the remaining (17%) were from the high income (annual income above Rs. 2,50,000) families. This is shown in Figure 1.

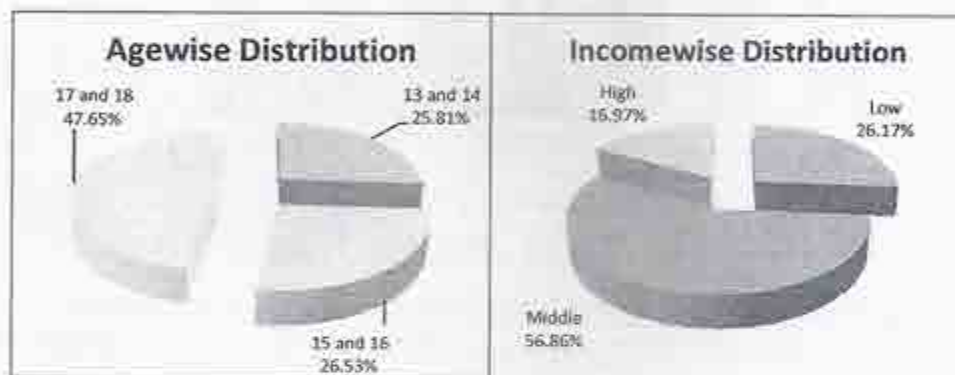


Figure 1: Participants' Profile

Majority of the participants were either first born (39%) or second born (32%). Today's family trends were clearly illustrated in the family type as 89% of the participants were from the nuclear families.

The analysis of the general food consumption pattern revealed that 76.9% of the participants were non-vegetarians, 9% were vegetarians, 5% lacto-vegetarians, 6% fish vegetarians and, the least represented group were lacto-ovo-vegetarians (2.9%) as shown in Figure 2. It has been reported by Stephanie (1984) that in South India, majority of the people were non-vegetarians with only a small segment of the population being vegetarians. The results of the study corroborate the above findings.

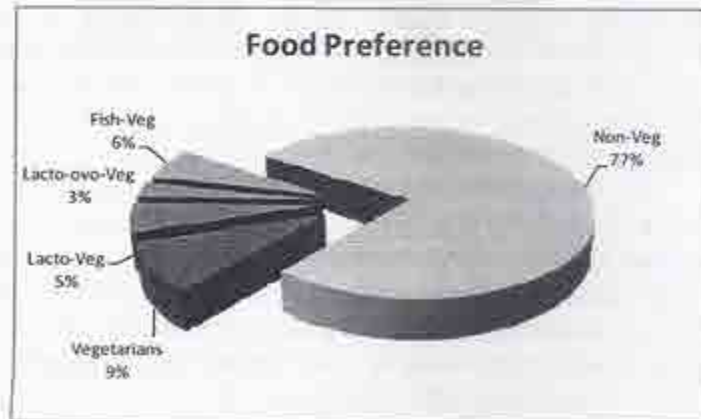


Figure 2: Food Preferences of the Participants

The data regarding the nutrient intake of different age groups was obtained. From the food consumption data, the nutrient intake (energy, protein, fat, vitamin A and C, calcium and iron) was determined. The nutrient intake thus obtained was compared with the RDA of nutrients recommended by ICMR (2004) across the three income groups as shown in tables 1 and 2 and illustrated in figures 3 and 4.

Table 1: Comparison of Mean Nutrient Intake with RDA (Age 13–15 Years)*

Nutrients		Low Income			Middle Income			High Income		
		Mean	%	't' value	Mean	%	't' value	Mean	%	't' value
Energy (kcal)	2060	1821	88.39	13.17**	1606	77.46	6.78**	1580	76.70	12.97**
Protein (gm)	65	50	76.92	44.13**	39	60.00	17.33**	41	63.08	31.61**
Fat (gm)	22	27	122.72	9.05**	37	168.18	6.92**	29	131.82	6.15**
Vit A (µg)	600	210	35.00	40.62**	285	47.50	8.22**	216	36.00	19.27**
Vit C (mg)	40	18	45.00	27.25**	16	40.00	8.48**	21	52.50	9.09**
Cal (mg)	600	429	71.50	33.82**	409	68.17	9.55**	429	71.50	15.66**
Iron (mg)	28	9	32.14	223.60**	10	35.71	27.00**	11	39.29	59.68**

*n = 231; ** Significant at 0.1% level; RDA Source ICMR, 2004

Table 2: Comparison of Mean Nutrient Intake with RDA (Age 16–18 Years)*

Nutrients		Low Income			Middle Income			High Income		
		Mean	%	't' value	Mean	%	't' value	Mean	%	't' value
Energy (kcal)	2060	1777	86.26	19.20**	1595	77.43	10.42**	1125	54.61	49.09**
Protein (gm)	65	51	78.46	25.68**	38	58.46	12.69**	39	60.00	28.56**
Fat (gm)	22	22	100.00	0.00**	37	168.18	11.54**	35	159.09	20.64**
Vit A (µg)	600	250	41.67	35.36**	263	43.83	12.22**	210	35.00	26.27**
Vit C (mg)	40	26	65.00	19.38**	21	52.50	9.04**	28	70.00	9.52**
Cal (mg)	600	434	72.33	11.45**	438	73.00	7.26**	406	67.67	19.18**
Iron (mg)	28	11	32.29	149.07**	9	32.14	53.31**	8	28.57	157.11**

*n = 323; ** Significant at 0.1% level; RDA Source ICMR, 2004

The consumption of energy, protein, vitamin A, vitamin C, iron, and calcium were significantly lower than the RDA for different age/income groups (significant at 0.1 level). Income wise comparison revealed similarity in the consumption pattern, as in all subjects the nutrient intake was lower than the RDA. The reason for the similarity in the nutrient consumption pattern across the income groups was because most of the participants had similar food consumption patterns, preferences, and most of the foods consumed were from outside sources rather than from home.

According to Adams (1997) the total nutrient needs of adolescents are higher than at any other period. Studies conducted by Nagi et al (1994) and Kochhar et al (1995) reported that the adolescents mean daily intakes of energy, protein and iron were inadequate. Reddy and Chandralekha (1998) also found that adolescent diet is deficient in proteins, minerals and vitamins. A recent study conducted by Anagha and Perpetua (2007) found that daily energy and protein intake was 68% of RDA among adolescent girls.

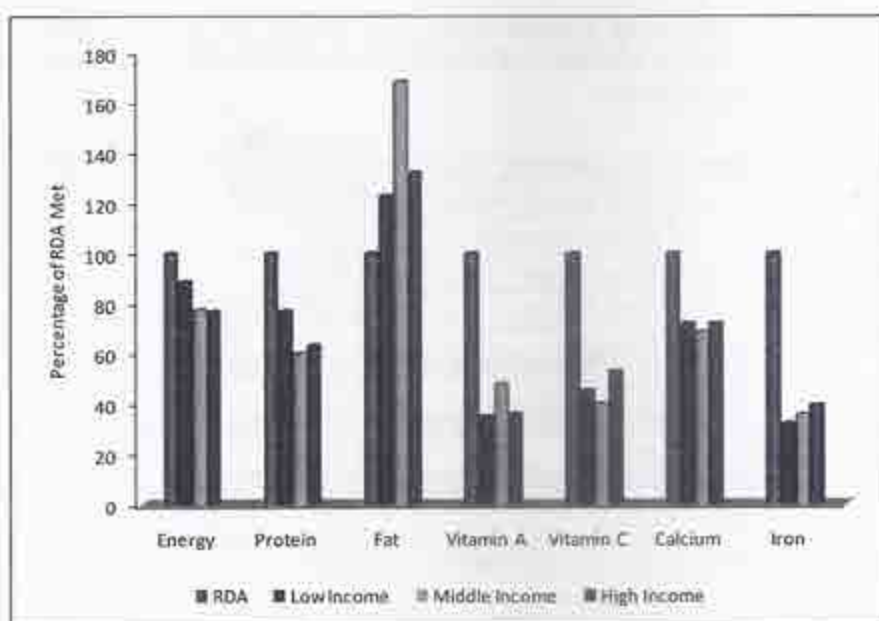


Figure 3: Nutrient Consumption Pattern (Age 13–15)

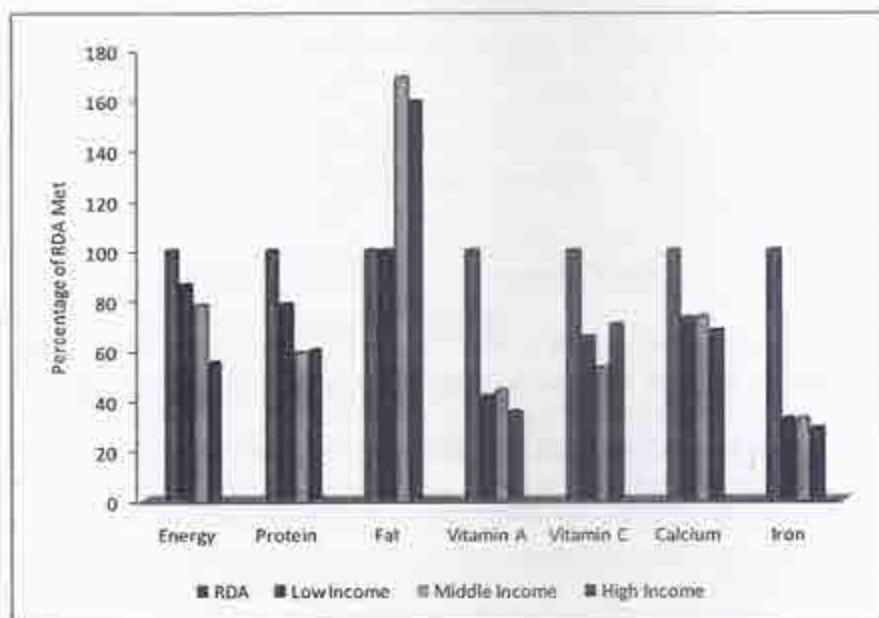


Figure 4: Nutrient Consumption Pattern (Age 16–18)

The details pertaining to the frequency of consumption of each *fast food* for the seven days of the week were collected. The *fast food* items that were consumed often were given more weightage than the items that were consumed less frequently. For example, an item that was consumed seven-days-a-week was given a weightage of 7, while an item that was consumed twice a week was given a weightage of 2. The weighted average of the adolescents' fast food consumption in a week is presented in Table 3. The results revealed that majority of adolescents consumed *fast*

food 5-6 times a week. The most popular items were cream biscuits, fried chips, soft drinks, noodles, *samosa*, etc. Cream biscuits ranked first in adolescence preference and the least preferred fast food was *gulab jamun*.

Table 3 Weighted Average of Adolescents' Fast Food Consumption in a Week

Fast Food Items	Frequency
Cream biscuits	5.77
Fried chips	5.66
Soft drinks	5.48
Noodles	5.12
<i>Samosa</i>	5.03
Candies/Chocolates	4.92
Puffs	4.85
Cutlets	4.71
Pizza	4.38
Banana fry/Vada	4.35
Sandwich	3.80
Burger	3.60
Meat rolls/packets	3.59
Hotdog	3.57
French fries	3.30
Ice cream	2.99
Fried chicken	2.60
<i>Bhel puri</i>	2.47
Cakes/Pastries	2.12
<i>Jilebi/Ladu/Halwa</i>	1.72
<i>Gulab Jamun</i>	1.34

It was reported by Anderson et al. (1993) that the snacks most popular among adolescents were crisps, confectionary or biscuits and they have it at least once a day. Carbonated beverages were found to be fascinating to adolescents. Whiting et al. (2001) have reported that low nutrient dense beverages such as carbonated drinks are increasing in adolescent diet. Spyckerelle et al. (1999) have also stated adolescents prefer fried items, cakes, pastries, sweets etc. Studies conducted by Mahajan and Chaturvedi (2007) found an increasing popularity of fast foods among adolescents (13-18 years). A study conducted by Rao et al. (2007) among urban adolescent girls in a South Indian city indicated that about 51 percent of the girls consume 'instant foods' 3-4 times a week, nearly 68 percent reported daily consumption of bakery items and 48 percent consumed aerated soft drinks 1-2 times a week.

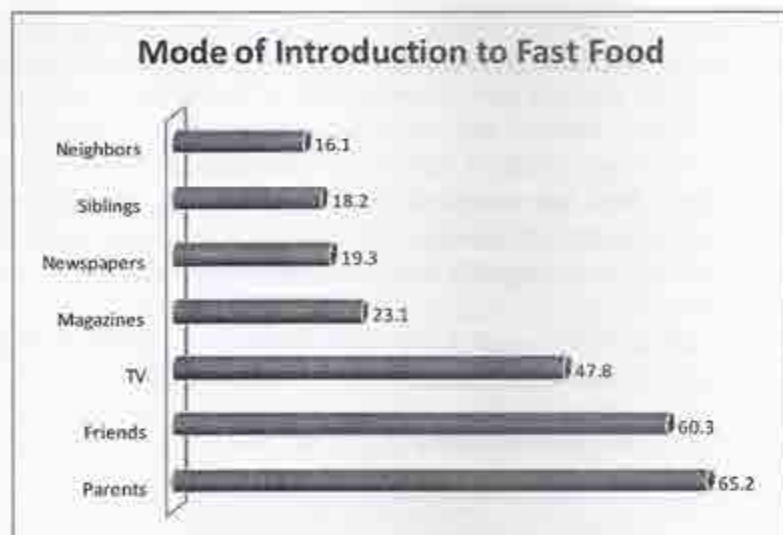


Figure 5: Mode of Introduction to Fast Food

The study revealed that in more than 65% of the cases the participants were introduced to the *fast food* by their parents. The next major influencers were friends (60%) and television (47%). This is shown in Figure 5. Most participants bought the *fast food* items mainly from the bakeries (78%), street vendors (77%) and shops near schools (70). The detailed list of *fast food* sources is shown in Figure 6.

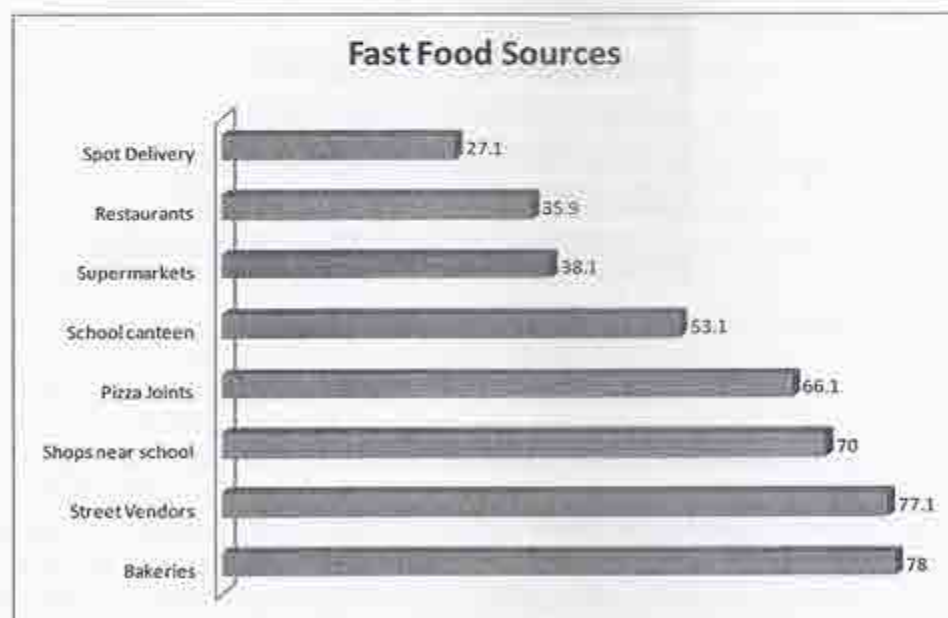


Figure 6: Fast Food Sources

In today's fast paced society, societal trends such as longer work hours, the decline of "at home family meals", and increasing prevalence of eating out may affect children's and adolescents'

eating patterns (Demory-Luce, 2005). Young people today spend considerable amount of their time at school. Schools are recognized as settings that offer access to most young people (Digest of education statistics, 1998) and are environments that influence the eating practices of school aged youth (Centre for disease control and prevention, 2004). With inadequate dining facilities and insufficient time to eat, many students turn to less nutritious food that are readily accessible in vending machines, snack bars and school stores (Bergman et al., 2000, Conklin et al., 2002). Community settings that are most proximal to adolescents influence their food choices. These include school, fast food outlets, restaurants, shopping malls, vending machines and convenience stores (Story et al., 2002).

The major factors that influenced the *fast food* consumption in the present study were the taste and attractiveness (85%), enjoyment (source of pleasure and satisfaction) (74%), easy availability (73%), peer pressure (66%), variety (62%), celebrity endorsements (47%), etc. The complete list of factors that influenced the *fast food* consumption of the adolescents is given in Figure 7.

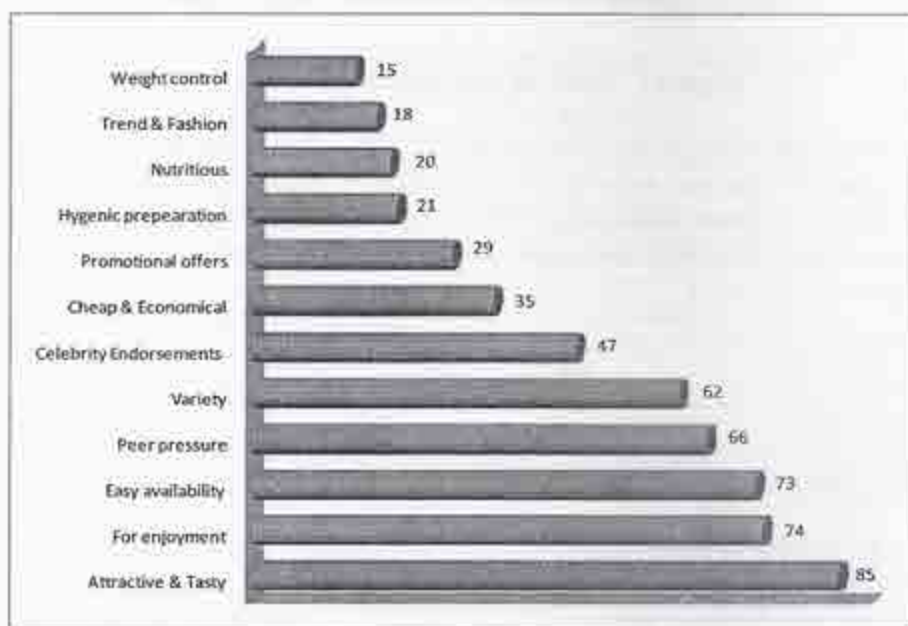


Figure 7: Reasons for *Fast Food* Consumption

Study conducted by Neumark-Sztainer et al. (1999) observed that taste and appearance were the primary factors considered by adolescents for food selection. French et al. (1999) assessed motivation for vending snack choices and found that adolescents rated taste as an important factor followed by hunger and price. Taste enjoyment has also been found to be influential for food selection (Barr, 1994). Health and nutrition are not a primary influence on food choices among the majority of adolescents. Eating junk food was associated with pleasure, being with friends, weight gain, independence, guilt, affordability and convenience (Story et al., 2002). Peer pressure, parent's dietary habits and media exposure influence the dietary intake of adolescents (Rao et al., 2007). Advertisement campaigns that involve celebrities excite and influence the children. It is a well known fact that ads that promote energy dense foods aerated drinks, chips, burgers, ice creams and pizzas have models with great figure rather than a fat and sloppy person.

Thus these ads disillusion young minds that may lack the discretion to think about the possible consequences and health hazards associated with the frequent consumption of these high energy foods (Saxena, 2006).

CONCLUSION

The study highlighted the dangers of the *fast food* trap that the adolescents are in. Majority of the participants consumed *fast foods* without knowing the health impacts and long term health implications. The importance of a balanced diet and regular and good eating habits were often ignored due to a host of reasons from ignorance to lack of time. So the necessity of awareness programs targeted at parents and children is self-evident. The media should play its role by stopping the glorification of fast foods through celebrity advertisements and instead try to educate the audience about good food habits, good foods and why it is important to stay away from *fast foods*.

REFERENCES

- Adams LB. (1997). An overview of adolescent eating behavior, barriers to implementing dietary guidelines. *Annals of the New York Acad Sci*, 817(1): 36-38.
- Anagha P, Perpetua M. (2007). Assessment of Dietary intake and daily activity pattern of 17 to 18 year old college going girls in South Mumbai. Abstracts: XL Annual National Convention of Indian Dietetic Association, Kottayam, Kerala.
- Anderson AS, Macintyre S, West P. (1993). Adolescent meal pattern grazing habits in the West of Scotland. *Health Bulletin*, 51(3): 158-165.
- Barr SI. (1994). Associations of Social and demographic variables with calcium intakes of high school students. *J Am Diet Assoc*, 94(3): 260-269.
- Bergman E. (2000). Time spent by school children to Eat Lunch? *J Am Diet Assoc*, 100(6): 696-698.
- Bezharuah S. (2003). Unhealthy Teens. *India Today XXVIII*(31): 42-49.
- CDC (Center for Disease Control and Prevention. (2004). Obesity still a major problem, New Data show. National Center for Health statistics [Online]. Available: <http://www.cdc.gov/nchs/pressroom/04facts/obesity.htm> [accessed November 3, 2004].
- Conklin MT, Lambert LG, Anderson JB. (2002). How long does it take students to eat lunch? A summary of three studies. *J Child Nutr Manage*, [Online]. Available: <http://docs.schoolnutrition.org/newsroom/jcnm/02spring/conklin/>
- Demory-Luce D. (2005). Fast food and children and adolescents: Implications for practitioners. *Clin Pediatr*, 44(4): 279-288.
- Digest of Education Statistics. (1998). National Center for Education Statistics [Online] Available: <http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=1999036>.
- French SA, Story M, Hannan P, Breitlow KK, Jeffery RW, Baxter JS, Snyder MP. (1999). Cognitive demographic correlates of low fat vending snack choices among adolescents and adults. *J Am Diet Assoc*, 99(4): 471-475.
- ICMR (Indian Council of Medical Research). (2004). Nutritive value of Indian foods. Hyderabad: National Institute of Nutrition. ICMR.

- Kelder SH, Perry CL, Klepp KI, Lytle LL. (1994). Longitudinal tracking of adolescent on smoking, physical activity and food choice behaviors. *Am J Public Health*, 84(7): 1121-1126.
- Mahajan S, Chaturvedi S. (2007). Fast food consumption pattern of 13-18 year old children: Impact of school related factors, Parents and Media. Souvenir and Scientific Abstracts. XL Annual National Convention of Indian Dietetic Association. Kottayam, India.
- Nagi MK, Chawla S, Sharma S. (1995). A study on the nutritional status of adolescent girls. *PI Fd Hum Nutr*, 47(3): 201-209.
- Neumark-Sztainer D, Story M, Perry C, Casey MA. (1999). Factors influencing food choices of adolescents: Findings from focus-group discussions with adolescents. *J Am Diet Assoc*, 99(8): 929-937.
- Rao RD, Vijayapushpam T, Rao GMS et al. (2007). Dietary habits and effect of two different educational tools on nutrition knowledge of school going adolescent girls in Hyderabad, India. *Eur J Clin Nutr*, 61(9): 1081-1085.
- Saxena R. (2006). Childhood Obesity—Act Now or Repent Later! *Science Reporter* 43(3): 9-13, 33.
- Singhal S, Rao UNB. (2004). Adolescent concerns through own eyes. New Delhi: Kanishka Publishers.
- Spykerelle Y, Herberth B, Deschamps JP. (1991). Food habits of adolescents. *Cahiers Nutr Dietetics*, 26(6):426-431.
- Stephanie P. (1984). Observations on dietary practices in India. *Nutr Planning*, 7(4):286-295.
- Story M, Neumark-Sztainer D, French S. (2002). Individual and environmental influences on adolescent eating behaviors. *J Am Diet Assoc*, 102(3): S40-S51.
- UNFPA (United Nations Population Fund). (2003). Adolescents in India. UNFPA for UN system in India.
- Whiting SJ, Healey A, Psuik S, et al. (2001). Relationship between carbonated and other low nutrient dense beverages and bone mineral content of adolescents. *Nutr Res*, 21(8): 1107-1115.

PERCEPTION OF SUPERVISORS AND TEACHERS REGARDING THE BARRIERS TO AND STRATEGIES FOR PROMOTING HOME-SCHOOL PARTNERSHIP

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The benefits of home-school partnership have been documented by a number of researchers (Coleman & Wallinga, 2000). As a result of home-school partnership, students demonstrate higher levels of achievement, parents become more supportive of their children and teachers perceive parents as being more helpful (Drake, 2000; Christenson & Sheridan, 2001; Carvalho, 2001; Christenson, 2003). Although the benefits of home-school partnership have been spelt out, observation of several professionals in the field indicates that the level of the same, in the urban Indian context, is minimal. Thus, the objectives of the study were to ascertain the perception of supervisors and teachers regarding the barriers to home-school partnership and the strategies for overcoming the same. The sample consisted of 80 participants, 20 supervisors (10 preschool, 10 primary school) and 60 teachers (30 preschool, 30 primary school) from 10 schools (7 affiliated to the SSC and 3, to the ICSE Board of Education) located in Mumbai. The schools, whose Principals gave permission to source the participants, were selected for the study. An interview schedule consisting of open-ended questions was constructed to elicit the desired information from the supervisors and teachers. Supervisors and teachers voiced two kinds of challenges in relation to home-school partnership, namely those related to the parents (supervisors [95%]; teachers [75%]) and those related to the school (supervisors [75%]; teachers [95%]). Some of the barriers related to parents included, a) time constraints of working parents (supervisors [100%]; teachers [75%]), b) negative attitude towards the school and the teachers in particular (supervisors [85%]; teachers [75%]), and c) parents being unsure about their ability to get involved (supervisors [50%]; teachers [75%]). Some of the barriers in relation to the school included, a) poor communication skills of the school personnel (supervisors [75%]; teachers [100%]), b) negative attitude towards parents (supervisors [75%]; teachers [85%]) and c) excessive school responsibilities of the teachers (supervisors [45%]; teachers [75%]). Some of the suggestions offered to enhance home-school partnership included a) obtaining feedback from parents regarding school activities and the school programme (supervisors [95%]; teachers [85%]), b) having a uniform and systematic policy of home-school partnership in every school (supervisors [85%]; teachers [85%]) and c) providing flexible timings for parents (supervisors [65%]; teachers [80%]). Findings have been discussed and a few recommendations have been provided to enhance home-school partnership.

Home and school are the two settings where children spend most of their time. When the links are supportive between the home and the school, there is more potential for healthy development in a child. Home-school partnership has been described as the participation of parents in every facet of the child's education and development from birth to adulthood. It is the support and participation of the parents at home, at the school site and in the community

(Fantuzzo, Tighe, & Childs, 2000). Research strongly indicates that home-school partnership can have beneficial effects on student learning, student achievement, attitudes, homework and aspirations (Maccoby, 1992; Henderson & Mapp, 2002; The National Education Association of the USA, 1997). Students develop a more positive attitude towards the school and demonstrate higher levels of achievement. Parents learn about how the school works, become more supportive of their children and have a positive view of teachers. Teachers perceive parents as being more helpful and their morale also improves (Bronfenbrenner 1979; Comer and Hanes 1991; Onikama, Hammond & Koki 1998; Epstein, 2005). Although the benefits of home-school partnership have been spelt out, the observation of several professionals in the field clearly indicates that the level of the same, in the urban Indian context, is minimal. This, coupled with the fact that there is a dearth of research in the Indian context focusing on problems associated with home-school partnership, served as an impetus for the current study. Thus, the objectives of the study were to ascertain the perception of supervisors and teachers regarding the barriers to home-school partnership and the strategies for overcoming the same.

METHODOLOGY

Sample Size

The participants of the study were 80 school staff (20 supervisors and 60 teachers) from preschool and primary school levels from ten schools (seven affiliated to the SSC and three, to the ICSE Board of Education) located in Mumbai. Of the total sample of 20 Supervisors, 10 belonged to the preschool level and 10, to the primary school level. Of the total sample of 60 teachers, 30 belonged to the preschool level and 30, to the primary school level.

Sampling Techniques

The schools, whose Principals gave permission to source the participants, were selected for the study. The sampling technique employed for supervisors and teachers was that of "reliance on available subjects".

Inclusion and Exclusion Criteria

The inclusion criteria for selecting supervisors were: a) those designated as "The Supervisor" of the preschool/primary school level in that school; b) a minimum qualification of a Higher Secondary Certificate with a degree/diploma in Early Childhood Education/ Education; c) in-charge of the administration, at either the preschool or primary school level of that school for a minimum period of three years. Those supervisors who were supervising both the preschool and primary school levels were excluded.

The inclusion criteria for selecting teachers were a) those designated as the "class teacher" of the Sr.KG/ 3rd standard; b) a minimum qualification of Higher Secondary Certificate with a degree/diploma in Early Childhood Education/ Education; c) a minimum of three years of experience in teaching preschool/primary school children.

Sample Characteristics

All 20 supervisors were females. Their ages ranged from 30 to 57 years ($M=46.50$; $SD=7.79$). In addition to having the minimum educational requirement, five primary school supervisors had a

Bachelors degree and four had a Masters degree. Their administrative experience ranged from 5 to 19 years ($M=9.85$; $SD=4.63$).

All the teachers were females. The ages of the teachers ranged from 29 to 57 years ($M=39.97$; $SD=7.82$). In addition to the minimum educational qualification, some (37) were graduates. The teaching experience of the 60 teachers ranged from 6 to 31 years ($M=12.28$; $SD=5.13$).

Tool, Method and Procedure

An interview schedule was employed to elicit the desired information from supervisors and teachers. The tool consisted of open ended questions, some tapping barriers/challenges to home-school partnership and some, suggestions to overcome these challenges. This interview schedule was constructed by the researcher. The face to face interview method was employed, so that, probing could be accomplished. Only open-ended questions were included so that in-depth information would be obtained. The face to face interview took approximately half an hour with each of the participants.

RESULTS

Barriers/challenges regarding home-school partnership

A range of barriers/ challenges regarding home-school partnership were mentioned by the supervisors and teachers. These responses were classified into two broad categories, namely a) challenges with regard to the school (supervisors [75%]; teachers [95%]) and b) challenges with regard to the parents (supervisors [95%]; teachers [75%]) Table 1 indicates eight challenges in relation to the school. As is evident from the table, a majority of both supervisors and teachers indicated the following as barriers: the school being unable to communicate to parents where their help was required; parents being perceived as a source of interference in the teaching process or other school matters; the school offering very few opportunities to engage parents in active involvement. More of the teachers as compared with the supervisors mentioned, as a barrier, excessive school responsibilities of the teachers (huge syllabus, high expectations of students from the school). Some spoke about the inability to convince parents about the importance of home-school partnership. Few mentioned fear of loss of teacher status due to involvement of the parents and lack of funds for home-school partnership activities. A few of the supervisors, but none of the teachers felt that parents being unable to contribute to their children's growth and development, was a barrier.

Table 1: Challenges Faced by the School As Perceived by the Supervisors and Teachers

No.	Challenges with regard to the school	Supervisor	Teachers
		<i>f (%)</i> (<i>N</i> =20)	<i>f (%)</i> (<i>N</i> =60)
1.	The school being unable to communicate to parents where their help was required	15 (75)	60 (100)
2.	Perception of parents as a source of interference in the teaching process or other school matters	15 (75)	51 (85)
3.	The school offering very few opportunities to engage parents in active involvement	15 (75)	50 (83.3)
4.	Excessive school responsibilities of the teachers (huge syllabus, high expectations of students from the school)	9 (45)	45 (75)
5.	Inability to convince parents about the importance of home-school partnership	9 (45)	15 (25)
6.	Fear of loss of teacher status due to involvement of the parents	5 (25)	6 (10)
7.	Lack of funds for home-school partnership activities	2 (10)	15 (25)
8.	Perception of parents as being unable to contribute to their child's growth and development	2 (10)	0 (0)

Table 2 indicates eleven challenges/barriers in relation to the parents. As is evident from the table, a majority of both supervisors and teachers indicated the following barriers: lack of time available to working parents; the tendency of parents to generalize their own negative childhood school experiences to their child's school and working parents not getting time off from work. Quite a few also spoke about parents being unaware as to how to get involved in school activities as a barrier. Some mentioned, as barriers, meetings/programmes held at inconvenient timings, parents being unable to understand the language (English) used by the school and parents feeling apprehensive about being exploited by the school staff. A few felt that the following were barriers: lack of childcare facilities; parents not feeling valued or appreciated by the school, parents not being informed about activities/meetings/programmes organized by the school and problems related to transportation.

Table 2: Challenges Faced by the Parents As Perceived by the Supervisors and Teachers

Challenges with regard to parents	Supervisor <i>f (%)</i>	Teachers <i>f (%)</i>
	(<i>N=20</i>)	(<i>N=60</i>)
1. Lack of time available to working parents	20 (100)	45 (75)
2. Parents tendency to generalize from their own negative childhood school experiences to their child's school	17 (85)	45 (75)
3. Working parents not getting time off from work	14 (70)	48 (80)
4. Parents being unaware as to how to get involved in school activities	10 (50)	45 (75)
5. Meetings / programmes held at inconvenient timings	6 (30)	18 (30)
6. Parents unable to understand the language (English) used by the school	9 (45)	18 (30)
7. Parents feeling apprehensive about being exploited by the school staff	6 (30)	9 (15)
8. Lack of childcare facilities	3 (15)	12 (20)
9. Parents not being feeling valued or appreciated by the school	3 (15)	6 (10)
10. Parents not being informed about activities / meetings / programmes organized by the school	2 (10)	6 (10)
11. Problems related to transportation	2 (10)	21 (35)

Strategies to overcome the barriers/challenges in relation to home-school partnership

The participants indicated a range of suggestions to overcome the barriers/ challenges in relation to home-school partnership (Refer to Table 3). A substantial majority felt that obtaining feedback from parents regarding school activities and the child's progress could improve home-school partnership. Having a uniform and systematic policy of home-school partnership in every school and providing concessions and flexibility to working parents, in terms of timings to meet the school authority/authorities was also suggested by a large majority. Some felt that involving parents in their child's learning; building open and clear communication between parents and teachers through encouragement and training and encouraging parents to actively participate in school activities would also be valuable in helping to meet the challenges of home-school partnership.

Table 3: Strategies to Overcome the Barriers/ Challenges in Relation to Home-School Partnership

Overcoming barriers to home-school partnership	Supervisor	Teachers
	<i>f (%)</i> (<i>N</i> =20)	<i>f (%)</i> (<i>N</i> =60)
1. Obtaining feedback from parents regarding school activities and child's progress that could improve home-school partnership	19 (95)	51 (85)
2. Having a uniform and systematic policy of home school partnership in every school which would help parents and teachers	17 (85)	51 (85)
3. Providing concessions and flexibility to working parents, in terms of timings to meet the school authority / authorities	13 (65)	48 (80)
4. Involving parents in their child's learning	13 (65)	23 (38.3)
5. Building open and clear communication between parents and teachers through encouragement and training	10 (50)	23 (38.3)
6. Encouraging parents to actively participate in school activities	9 (45)	15 (25)

DISCUSSION

In today's world, parents play a vital role in the development and education of their children, as well as in the success of schools, through the attitudes they help to shape and the direct supports they provide with respect to their child's learning (Simon, 2004). Research indicates that good schools become better schools when there is a strong connection with parents as part of the learning community (<http://www.edu.gov.on./parents/involvement/index.html>). What has emerged from the study is that there are several perceived barriers to home-school partnership in relation to the school, two of which were the school being unable to communicate to parents where their help was required and excessive school responsibilities of the teachers. Teacher training courses generally emphasize instructional methodology and not communication skills. It is not surprising then that teachers may find it difficult to communicate effectively with parents. These days teachers are saddled with multiple responsibilities and have to manage huge numbers of students in the classroom. Allocating time to and investing energy in home-school partnership is thus very difficult.

Regarding the perceived barriers in relation to parents, lack of time available to parents and parents being unaware of how to get involved were among those mentioned. In today's world, both parents are employed outside the home and with tight and lengthy work schedules, getting involved in their child's school is indeed a challenge. Also with schools expanding in size and becoming more complex in structure and function, the perception of parents regarding their role in the school is bound to be characterized by doubt and confusion.

Some of the suggestions offered by the participants, to enhance home-school partnership, included providing flexible timings to parents and enhancing home-school communication. Providing flexible timings to parents to meet, interact and discuss with school personnel would certainly provide a greater opportunity to parents to get involved in home-school partnership. Enhancing home-school communication would facilitate the development of communication avenues with culturally diverse families.

The study indicated that one of the barriers was that of the parents and teachers having a negative attitude towards each other. Modifying the attitude of parents and teachers towards each other in a positive direction is relevant as one's attitude is the source of behaviour. A positive attitude would increase the scope for desirable and appropriate behaviour. It is also essential for schools to invest in a long-term professional development strategy which supports the partnership and involvement of parents and the community. Teachers, as well as administrators, must reach out to parents to involve them in a planning and decision-making role. Schools must commit themselves to providing the training and time necessary for teachers to accomplish these goals, in order to build and sustain partnerships with parents and the community that will improve the educational performance of its students.

The findings of this study can serve as the basis for formulating policies that will encourage all stakeholders (school authorities, teachers, parents and the community) to get actively involved in home-school partnership. Also workshops can be designed for the schools who have participated in this research in order to enhance home-school partnership.

REFERENCES

- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Carvalho, S. (2001). *Expanding knowledge of parental involvement in secondary education: Effects on high school academic success (CRESPAR Report 27)*. Baltimore, MD: Johns Hopkins University. ED426174. <http://www.csos.jhu.edu/>
- Christenson, S. L., & Sheridan, S. M. (2001). *Parental involvement in raising the achievement of primary school pupils: Why bother?* New York: The Guilford Press.
- Christenson, S.L. (2003). The family-school partnership: An opportunity to promote the learning competence of all students. *School Psychology Quarterly*, 18(4), 454-482.
- Coleman, J. S., & Wallinga, T. (2000). *Public and private high schools: The impact of communities*. New York: Basic Books.

- Comer, J. P., & Haynes, N. M. (1991). Parent involvement in schools: An ecological approach. *Elementary School Journal*, 91(3), 271-277.
- Drake, D.D. (2000). Parents and Families as Partners in the Education Process: Collaboration for the Success of Students in Public Schools [Electric version]. *ERS Spectrum*, 18 (2), 34-39.
- Epstein, J. L. (2005). School/family/community partnerships: Caring for the children we share. *Phi Delta Kappan*, 76 (9), 701-712. (ERIC Journal No. EJ502937)
- Fantuzzo, J., Tighe, E., & Childs, S. (2000). Family involvement questionnaire: A multivariate assessment of family participation in early childhood education. *Journal of Educational Psychology*, 92(2), 367-375.
- Henderson, A., & Mapp, K. (2002). A new wave of evidence: The impact of school, family and community connections on student achievement. Austin, TX: National Centre for Family and Community Connections with Schools.
- <http://www.edu.gov.on.ca/parents/involvement/index.html>
- Maccoby, C. (1992). Making the connection between families and schools: Why and how parents are involved in their children's education. Unpublished Doctoral Dissertation, Harvard University, Cambridge, MA.
- National Education Association of the United States of America. (1997) Building Parent Partnerships. pp. 20, 23, 24, 32.
- Onikama, D., Hammond, O., & Koki, S. (1998). Family Involvement in Education: A Synthesis of Research for Pacific Educators. Honolulu, Hawaii: Pacific Resources for Education and Learning.
- Simon, B. S. (2004). Predictors of high school and family partnerships and the influence of partnerships on student success. Unpublished Doctoral dissertation, Johns Hopkins University.
- Vaden-Kiernan, C., & Davies, S. (1993). Home-school relationships: the swarming of disciplinary mechanisms? *British Educational Research Journal*, 23, 361-377.

WOMEN IN POLITICS-A STUDY IN GUJARAT

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Women make up almost half of the adult population in the world. Their work is imminent individually in families, in society, in nation and in politics on the whole but they are still vastly under-represented in the political and administrative posts that make important policy decisions affecting them. Their under-representation becomes critical especially in the context of declining sex ratio, increasing violence and crimes against women and their marginalized status in development sectors. Their social and family responsibilities are the barriers to their active participation in politics. This study identifies the reasons, problems and suggestions to improve the status of women in politics. Politically active women from the Jilla panchayat, Taluka panchayat, Vadodara Mahanagar Sewa Sadan, Bhartiya Janata Party (BJP) and Congress offices in Baroda were subjects in the present study. Purposive sampling method was used to select 120 women politicians. A questionnaire was developed consisting of four sections that were background information regarding political participation of the respondents; reasons for low participation of women in politics and suggestions to improve the political participation of women. The findings revealed that majority of the women politicians were in politics because they had family or friends in politics. Although they had low educational background and belonged to the middle-income group they were very active in politics. The study has shown that politically active women were aware of the reasons for the low participation of women in politics, they agreed to a great extent for all the suggestions to improve the political status of women. While efforts to improve women's status have had some success, it is evident that new measures need to be taken to solve the problem of continuing inequality of women.

The status of women forms one of the most trustworthy and reliable indices of the state of society and indicates the nature and direction of social change. According to the United Nations Report, "Women constitute half the world's population, perform nearly 2/3rd of its work hours, receive 1/10th of the world's income and own less than 1/100th of the world's property".

Important questions concern the position that women have, the rights and privileges they enjoy, their freedom and choice on different matters, access to and control of resources and earnings. The answers to these questions would not only suggest the status and position of women in the society but also the problems and constraints they face and how these can be articulated and altered. Despite changes in all such institutions like family, society, economy, education, health, nutrition and politics the status of women has not improved today.

Present day Indian culture is the product of its old feudalistic and new materialistic order. As the increasing rigidity of the caste system meant more control and oppression of women in the earlier days, so now with the deterioration of the law and order situation, crimes against women are on the rise. Women get affected in much more crucial ways by the decisions at the policy-making levels, by the new changes in the form of modern technology, industry and mining, by the changing social norms etc. Since decisions at the policy-making level affect women's lives and

have a significant impact on them, it is important that more women occupy decision-making positions and those who are already there are gender sensitized.

Today, one of the issues of concern is the level of women's participation in political life. Here, political participation includes the right to vote, right to contest, right to candidacy, women as campaigners, women as members, women's involvement in the decision-making process and appointment of women at all levels of government. However, the major obstacles to women's full participation in politics are a nearly universal societal attitude that has valued women principally as mothers and wives. Because of this, women have been restricted from equal opportunity. If we want to bring about change in the lives of women and transform mainstream politics, there is no other way than to get women involved in politics and transform it. The women's movement has been a powerful agent of empowerment that has created organizational strength of women, has focused on women's issues and mobilized them around these issues. The women in the movement, however, have stayed away from active participation in politics.

It is necessary to find out the reasons that are responsible for limiting women's participation in the political process. Thus, the present study has made an attempt to analyze the background of politically active women, identify reasons as stated by them for the low participation of women in politics and identify their suggestions to improve the status of women in politics.

Objectives of the study were

1. To study the profile of women politicians of Vadodara.
2. To study the social and political reasons identified by women politicians for the low participation of women in politics.
3. To analyze the suggestions given by women politicians to improve the participation of women in politics.

METHODOLOGY

Description of the Population

The population of the present study consisted of politically active women belonging to the Jilla panchayat, Taluka panchayat, Vadodara Mahanagar Sewa Sadan, Bhartiya Janata Party (BJP) and Congress offices in Baroda, Gujarat District. The purposive sampling method was used to select 120 politically active women.

Construction of the tool

A questionnaire was developed by the investigator. The questionnaire was divided into four sections. Table 1 describes the tool used to generate information and the response system. The tool consisted of questions regarding personal and political information of the women politicians, questions pertaining to reasons for the low participation of women in politics and questions on suggestions to improve the participation of women in politics. Table 2 gives the categorization of variables in the study.

Table 1 : Construction of the tool and response system

Section	Aspect	Response system
1. Profile	<ul style="list-style-type: none"> • Background information • Information regarding political participation of the respondents 	Check list and open ended
2. Reasons	<ul style="list-style-type: none"> • Reasons for low participation of women in politics regarding the following aspects: • Social reasons • Political reasons 	3- point scale
3.Suggestions	Suggestions	3-point scale

A three point scale was used for section 2 (Reasons for lack of women's participation in politics) and section 3 (Suggestions for improving political status of women in politics). The items under section 2 were scored as follows:

No:	Response system	Score
1.	Agree	3
2.	Partially agree	2
3.	Disagree	1

The following ranges of scoring were used for section 2

No.	Range of the score	Description
1.	2.60 – 3.00	Most agreed upon
2.	1.60 – 2.59	Partially agreed
3.	1.0 – 1.59	Not agreed at all

The response system of Section 3 (Suggestions for improving the political status of women in politics) was as follows

No.	Level	Score
1.	Great extent	3
2.	Some extent	2
3.	Less extent	1

And the ranges for section 3 were as follows

No.	Range of the score	Description
1.	2.60 – 3.00	Agreed to Great extent
2.	1.60 – 2.59	Agreed to Some extent
3.	1.0 – 1.59	Agreed to Less extent

Item wise intensity indices (II) were calculated for the following aspects:

- Social reasons for the low participation of women in politics
- Political reasons for the low participation of women in politics

- Suggestions to improve the political status of the women.

Formula used for Item wise intensity Indices was:

$$\text{Item wise Intensity Indices} = \frac{\text{Total score for an item}}{\text{Total number of the Respondents}}$$

Table 2 Categorization of the variables under study

No.	Variables	Basis	Category
1.	Age	20-30 years 31-50 years 51- above 60 years	Young Middle Old
2.	Educational qualification	Primary – high secondary school Graduate- post graduate and any other	Low level High level
3.	Experience in politics	1-5 years 6-10 years 11-15 and above	Less Moderate High
4.	Involvement of close relatives in politics	–	Involved Not involved
5.	Family income (per month)	Up to Rs. 5,000-10,000 Rs. 10,001- Rs.25,000 Rs. 25,001- Rs.30,000 and above	Low income Middle income High income

RESULTS

Background Information

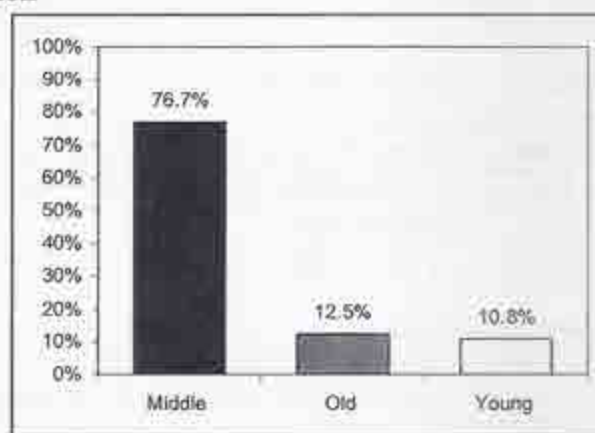


Figure 1: Percentage distribution showing age of the respondents (N =120)

Figure 1 reveals that nearly seventy seven percent of the respondents belonged to the middle age group (31-50 years), twelve percent of the respondents belonged to old age group (51- above 60 years) and eleven percent of the respondents belonged to young age group (20-30 years).

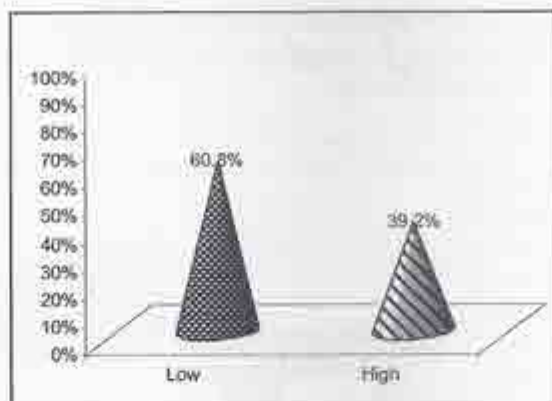


Figure 2: Percentage distribution showing Educational Qualification of the respondents

Figure 2 reveals that more than half (60.8%) of the respondents had low level of educational qualification (Primary – high secondary school), whereas nearly forty percent had high level of educational qualification (Graduate- post graduate level).

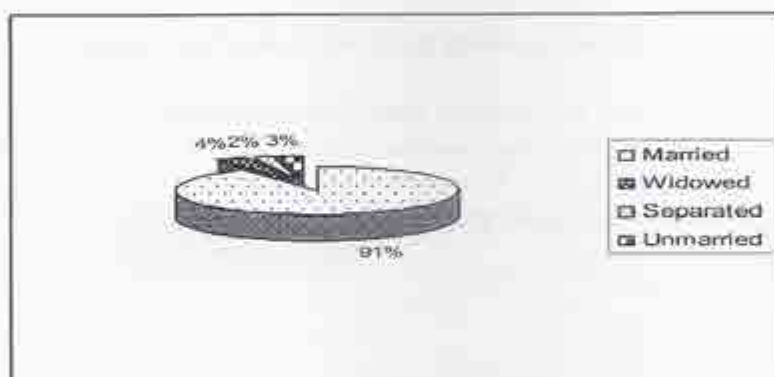


Figure 3: Percentage distribution showing marital status of the respondents (N =120)

Figure 3 reveals that a very high majority, ninety one percent, of the respondents were married, whereas four percent of the respondents were widowed. Three percent of the respondents were unmarried whereas nearly two percent of the respondents were separated.

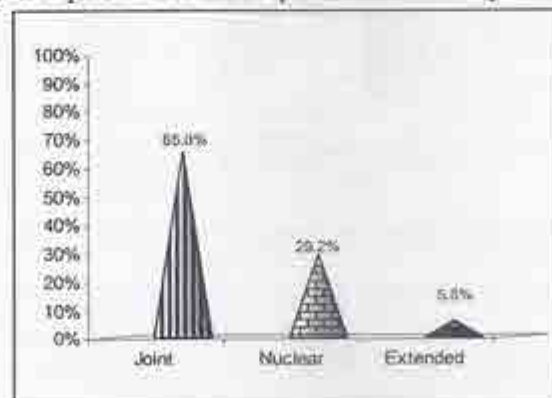


Figure 4: Percentage distribution showing Type of family of the respondents (N =120)

Figure 4 reveals that sixty five percent of the respondents were from joint families whereas twenty nine percent of the respondents belonged to nuclear family and about six percent (5.8) of the respondents belonged to extended family.

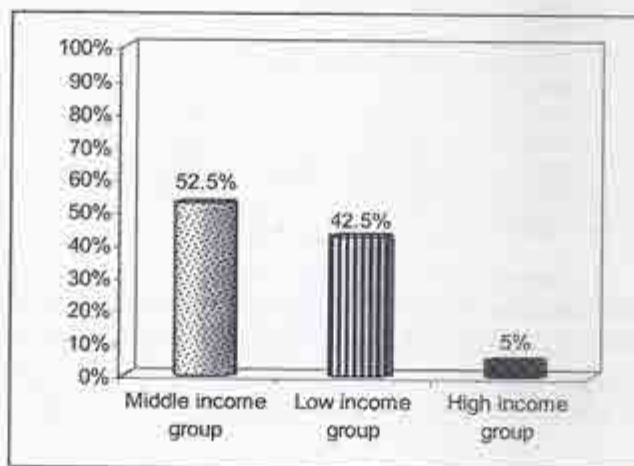


Figure 5: Percentage distribution showing family income of the respondents (N =120)

More than half (52.2) of the respondents belonged to middle income group (Rs. 10,001-Rs.25,000 per month), whereas forty two percent respondents belonged to low income group (Up to Rs. 5,000-10,000 per month). Only Five percent of the respondents belonged to high income group (Rs. 25,001- Rs.30,000 and above per month) (Fig 5)

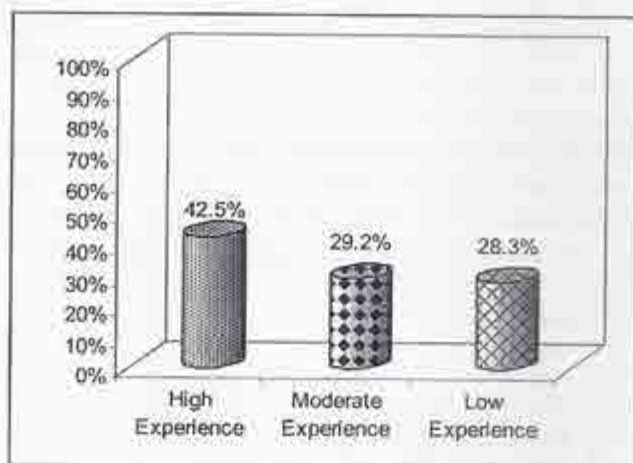


Figure 6: Percentage distribution showing Experience of the respondents (N =120)

Figure 6 reveals that more than one third (42.5) of the respondents had high experience (11-15 years and above) in politics whereas twenty-nine and twenty-eight percent of the respondents had less (1-5 years) and moderate (6-10 years) experience in politics respectively.

Data reveals that more than half (57.5) of the respondents had close relatives and friends in politics whereas more than one third (42.5) of the respondents had no relatives and friends in politics. (Figure 7)

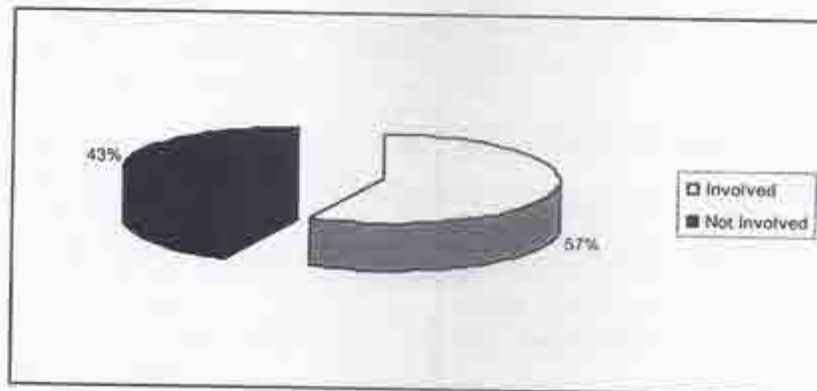


Figure 7: Percentage distribution showing Close relatives and friends of the respondent in politics (N =120)

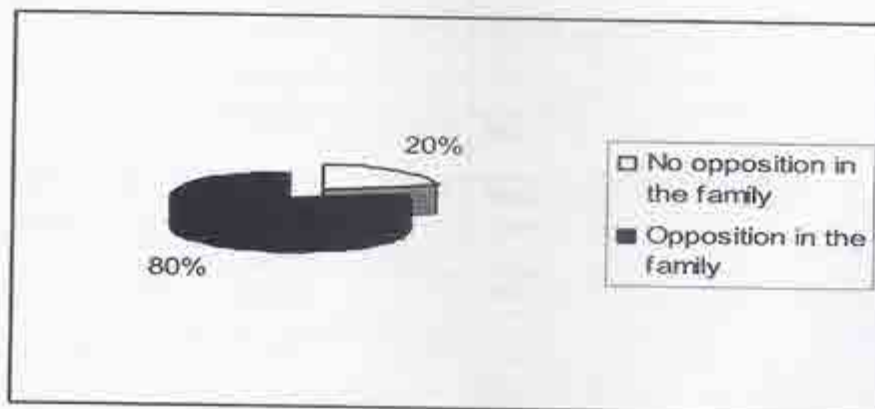


Figure 8: Percentage distribution showing Opposition of family members of the respondents N =120

Figure 8 shows that twenty percent of the respondents had no opposition in their family, whereas eighty percent of the respondents had to face opposition in their family to join politics.

Reasons for low participation of women in politics.

Reasons for low participations were studied by analyzing the social reasons as well as political reasons identified by the women politicians in the study.

Table 3 reveals that the item wise intensity indices for the social reasons for low participation of women in politics ranged from 2.47 to 1.79. It means that the respondents had partially agreed for the social reasons. The highest intensity index was found to be 2.47 for women facing financial problems to carry out the political work. It means that the respondents had strongly agreed to this reason. The respondents partially agreed to reasons such as social and cultural barriers, women being financially dependent on men and women's voice is hardly given any weightage in society.

The lowest intensity index was found to be 1.79 for "women candidates are just as puppets in politics". It means that the respondents had not agreed at all to this reason.

Table 3: Intensity Indices & percentages showing social reasons for the low participation of women in politics

No:	Social reasons	Agree (%)	Partially agree (%)	Disagree (%)	Intensity indices
1.	Women face financial problems to carryout political work.	64.2	18.3	17.5	2.47
2.	Social and cultural barriers have stood in their way to participate in politics.	52.5	25	22.5	2.30
3.	Women are financially dependent on men. This has a negative influence on the women's sense of independence and confidence in politics.	48.3	26.7	25	2.23
4.	Women's voice is hardly given any weightage in society.	45	31.7	23.3	2.22
5.	Women are not treated as equal to male colleagues in politics.	45	25.8	29.2	2.16
6.	Women have lack of support from family and friends entering into politics.	42.5	29.2	28.3	2.14
7.	Women are not trained to be politician.	45	23.3	31.7	2.13
8.	Low level of education has led to women not being aware of their rights.	44.2	23.3	32.5	2.12
9.	In society women are not given equal status, so women can't fight for their rights.	43.3	24.2	32.5	2.11
10.	Women are not entering into politics due to the fear of exploitation.	40.8	27.5	31.7	2.09
11.	Women often feel shy to go to political meetings and discuss issues in front of men folk.	40.8	26.7	32.5	2.08
12.	Women candidates are not given priority to be leader.	40	24.2	35.8	2.04
13.	Women are not physically strong to handle a situation demanding self protection.	34.2	33.3	32.3	2.02
14.	Women's occupational problems are aggravated because of their gender.	31.7	38.3	30	2.02
15.	Men do not give support to women in carrying out their political work.	34.2	20.8	45	1.89
16.	Women are not allowed to travel or campaigning outside for the party.	31.7	24.2	44.2	1.88
17.	Women have multiple roles including household work, so they are not able to do their political work.	28.3	28.3	43.3	1.85
18.	Women candidates are just as puppets in politics	29.2	20.8	50	1.79

Table 4: Intensity Indices & Percentages showing political reasons for the low participation of women in politics:

No.	Political reasons	Agree (%)	Partially agree (%)	Disagree (%)	Intensity indices
1.	Women are not well informed about political matters.	48.3	33.3	18.3	2.30
2.	Women can enter and succeed in politics only if parties field them as their candidates.	51.7	21.7	26.7	2.25
3.	Political parties do not give tickets easily to the women candidates.	47.5	17.5	35	2.12
4.	Senior Politicians do not give political responsibilities to women.	46.7	18.3	35	2.12
5.	Political parties do not give a proper representation to women.	37.5	32.5	30	2.07
6.	Women get less political work as compared to their male counterparts.	39.2	25.8	35	2.04
7.	Jobs that need more intelligence and talents can be done by male politicians and not women.	35.8	31.7	32.5	2.03
8.	It is difficult for women to establish contact with party workers.	39.2	20.8	40	1.99
9.	Political parties hesitate to nominate women as candidates in election.	36.7	22.5	40.8	1.96
10.	Some women enter into politics due to family political background.	35	25	40	1.95
11.	Women hesitate to attend political meetings /rallies/ demonstrations.	34.2	25.8	40	1.94
12.	Women's issues never got priority in the election campaign.	28.3	32.5	39.2	1.89
13.	Only women from upper class families can enter into politics.	28.3	29.2	42.5	1.86
14.	Being a woman her ideas, suggestions, opinion, feeling are ignored by the political leaders.	29.2	17.5	53.3	1.76
15.	Women are unable to take political decisions independently.	20.8	29.2	50	1.71
16.	Women only enter into politics to protect their relative's seat.	19.2	20.8	60	1.59

Table 4 reveals that the item wise intensity indices for the political reasons for the low participation of women in politics ranged from 2.30 to 1.59. It means that the respondents had partially agreed to the political reasons as hindrance to their participation in politics.

The political reason for low participation of women in politics that secured highest intensity index was "women are not well informed about political matters". This means that the respondents had strongly agreed to this political reason. This is followed by other political reasons such as "women can enter and succeed in politics only if parties field them as their candidates". Political parties do not give tickets easily. Senior Politicians do not give political responsibilities to women

was the reason which was partially agreed upon by the respondents. The lowest intensity index was found to be 1.59 for the reason "women only enter into politics to protect their relative's seat". It means the respondents had not agreed at all to this political reason.

Table 5 gives the Suggestions given by the respondents to improve the political status of women in politics.

No:	Suggestions	Great extent (%)	Some extent (%)	Less extent (%)	Intensity indices
1.	Sensitize and make women conscious of their rights and power to vote.	90.8	8.3	0.8	2.90
2.	Intensive training should be given to the newly elected women members by the political parties to carry out political duties effectively.	79.2	17.5	3.3	2.76
3.	Women should fight for their right to progress in politics.	78.3	18.3	3.3	2.75
4.	Women need to be helped to raise their voices.	75	20	5	2.74
5.	Women should be motivated and inspired to think, discuss and act to solve problems by political leaders.	73.3	21.7	5	2.68
6.	The non elected women's group should provided necessary moral and advisory support to women candidates to increase their capacities for being elected to political parties.	72.5	21.7	5.8	2.67
7.	Political empowerment should be given to women to become independent.	73.3	19.2	7.5	2.66
8.	Political parties should encourage and build confidence among women to enter into politics.	69.2	26.7	4.2	2.65
9.	There should be an effort made to increase the number of woman members in political parties and decision making bodies.	68.3	28.3	3.3	2.65
10.	Women should be given position of power in the decision making process from the grassroots level.	71.7	20	8.3	2.63
11.	Political parties should play an important role in recruiting candidates.	70	20.8	9.2	2.61
12.	Reservation for women should be extended to the parliament and state legislatures	62.5	33.3	4.2	2.58
13.	Women should be encouraged to speak in public and involved in dialogue with political party.	64.2	29.2	6.7	2.58
14.	Government should give reward to encourage women representative for their outstanding performance	65	27.5	5.5	2.58
15.	Women's organization should raise resources and help women candidates to contest and win election.	62.5	32.5	5	2.57
16.	Political parties can arrange courses to orient women members for strengthening the process of their political empowerment.	60.8	35.8	3.3	2.57
17.	Women should be given position of power in the decision making process from the grassroots level.	60	31.7	8.3	2.52
18.	Promoting politics as a career among women.	56.7	32.5	10.8	2.46

Table 5 reveals that the item wise intensity indices ranged from 2.90 to 2.46. This means that the respondents agreed from great extent to some extent for the suggestions to improve the political status of the women in politics. The highest intensity index was found to be 2.90 for the suggestion to sensitize and make women conscious of their rights and power to vote. This revealed that the respondents had agreed to very great extent to this suggestion.

This was followed by other suggestions such as "intensive training should be given to the newly elected women members by the political parties to carry out political duties effectively, women should fight for their right to progress in politics, women need to be helped to raise their voices, women should be motivated and inspired to think, discuss and act to solve problems by the political leaders to which respondents agreed to a great extent. The lowest intensity index was found to be 2.46 for promoting politics as a career among women. This means the respondents had agreed to some extent to this suggestion.

CONCLUSION

From the discussion of the study, it can be concluded that majority of the women politicians were in politics because they had family or friends in politics. Although they had low educational background and belonged to middle-income group, they were very active in politics. Overall, all social and political reasons were reported to be partially responsible for the low participation of women in politics. The study has shown that politically active women were aware of the reasons for the low participation of women in politics, they agreed to a great extent to all the suggestions to improve the political status of women in politics. The study has shown that for women, being in politics today is like being in a job, they're committed to their profession. But beyond that there is nothing to prove to anyone. It's no longer about being in a man's world and usurping his territory, so the aggression that used to be there in earlier day politicians is no longer a requirement for them. Politics is though a man's world where women are now trying to claim their parking space. Whether they like or not, women in politics willingly toe, the agenda set by males. They talk like them, think like them, and political parties accept them.

In view of the acknowledged links between various socio-economic factors, including women's status and women's overall well being that operates synergistically to further marginalize women, one cannot but argue strongly for a woman centered population policy. While changing deeply embedded cultural norms particularly regarding gender equality is a slow process, in the short term efforts need to be geared towards improving women's access to health, education, employment, and politics so as to tackle the twin objectives of women's well being and women empowerment. But the facts remain that there is an urgent need to empower women to enhance their quality of participation.

REFERENCES

- Afsar H (1996) Women and Politics in the Third World, Concon, New York.
- Bhatt S (1995) Women Parliamentarians of India, Shiva Publishers and Distributors, Udaipur.
- Kaushik S (1993) Women and Panchayat Raj, Haranand Publications, New Delhi

- Kaushik S (1997) Women in Politics, National Commission for Women, New Delhi.
- Kumar S(2006) Political Participation of Women in India, *Indian Journal of Politics*, Volume No. 4, Oct-Dec.
- Patel V (2005) Getting a Foothold in Politics, Women in Political Decision Making Process, Social Action, a Social Action Trust Publication, Volume 56, Jan-Mar.
- Singh P (2003), Women Legislators in Indian Politics, Concept Publishing Company, New Delhi
- Thakkar U and Gawankar R (2004), Women in Panchayat: March towards Empowerment, One India One People-Special Number on Women in Politics, March.
- Ujwala H (1997) Women in Grassroots Politics, *Social Welfare*, Vol.44, No.2, May
- Vidya K.C (1997) Political empowerment of women at the grassroots, Kanishka Publishers & Distributors, New Delhi.

ASSOCIATION OF DIETARY FACTORS WITH BREAST CANCER: A CASE-CONTROL STUDY IN VARANASI

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Breast Cancer is the most frequently diagnosed cancer as well as the second leading cause of cancer death in American Women. In India breast cancer is the second cancer in women after carcinoma of the cervix. The present study is a hospital based case- control study, in which 65 patients of breast cancer (as cases) and 65 normal healthy women as a control group, attending the department of surgical oncology out patients department were included. A pre-designed questionnaire was administered to each individual to elicit information on dietary consumption patterns. The study suggests that a high consumption of fruits, vegetables and fish appear to be protective factors against breast cancer, while preference for fried foods showed evidence of increased risk for breast cancer. Further studies need to be carried out to evaluate specifically the relative risk associated with each of these dietary factors in the Indian context.

Key words: Case- control design, Diet, Nutrients, Fruits & vegetables, Breast cancer,

Breast cancer has not only been a major health problem over the last 50 years; but also a matter of great concern now a days as the second leading cause of cancer death in American women and the second most common cancer in Indian women. It is a phenomenal public health problem and its incidence is rising at the rate of approximately two percent per year in all population (Mitra, 1998). In India the incidence of breast cancer among women was 20 per 100,000 in 1970 and 28.6 per 100,000 in the year 2000, showing an increase in incidence. The age adjusted incidence was 15-25 / 100,000 women in 1996 (ICMR, 2001). Breast cancer incidence varies more than fivefold around the world. That good nutrition may reduce the incidence of breast cancer and the risk of breast cancer progression or recurrence, is now well accepted by most of the researchers. Diet has a prominent role among the potential environmental determinants (Kelsey et.al., 1993). Of all the environmental factors, dietary components play an important role in the initiation/ progression of the disease. Nutrients and non- nutrients in the diet can influence the carcinogenic process at various stages, from initiation to overt manifestation (Krishnaswamy & Polasa, 1995). There is scientific evidence that intake of red meat, animal / saturated fat, rapid early growth, greater adult height, alcohol consumption, weight gain in adult life and high body mass after menopause possibly increase the risk. Similarly diets high in vegetables and fruits, non-starch polysaccharides (fiber), regular physical activity and carotenoides possibly decrease the risk of breast cancer (Potter, 1997). There has been considerable evidence for the role of fruits and vegetables in the chemoprevention of cancer. It has been hypothesized that diets high in vegetables and fruits probably decrease the risk of breast cancer (Potter, 1997). To provide further information on the issue in the Indian context, we studied the relationship between dietary factors and the risk of breast cancer, using data from a case- control study.

MATERIAL & METHODS

The study was carried out using a hospital based matched case- control design. It was designed to highlight the main parameters of breast cancer epidemiology in relation to dietary factors. In this case- control study 65 patients of breast cancer (as cases) and 65 normal healthy people as control group subjects, attending the Department of Surgical Oncology out patients department from September 2006 to February 2007 were included. Controls were selected on the basis of matched sampling method by matching for age. The ratio of case: control was 1: 1. A pre-designed questionnaire was administered to each individual to elicit information on dietary consumption pattern. Frequencies of consumption of various food items were considered separately. Food frequency questionnaire assessed the frequency of consumption of the major food groups including cereals, pulses, green leafy vegetables, roots and tubers, other vegetables, fruits, milk and milk products, egg and flesh foods, and oils. The subjects were asked to provide as accurately as possible, information on their habitual intake of these foods. The questionnaire also had questions on other food habits in which the subjects were asked whether they had a preference for consumption of spicy and fried foods (such as *samosa*, *puri*, *pakoda*, *parata*). Frequency of food consumption was divided into 3 levels: 1 (high) = ≥ 3 days/ week, 2 (intermediate) = 2-1 days/ week and 3 (low) = rare or never consumption. Data on other known etiological factors for breast cancer such as family history, body weight, parity, previous history of breast disease/ breast cancer and previous history of radiation etc were also generated in the questionnaire. However, the present paper is a preliminary investigation on the role of dietary factors in the etiology of breast cancer in Indian women. Since the influence of other confounding variables have not been quantified, statistical inferences on relative risk associated specifically with each of the associated risk factors have not been incorporated.

RESULTS & DISCUSSION

Most of the subjects in each group belonged to the fourth decade of life. Mean age of breast cancer patients was 44.60 ± 9.75 years and it was 44.97 ± 8.88 years for the control groups; however this difference was statistically not significant. Table 1 shows the distribution of cases of breast cancer and controls according to the consumption levels of fruits and vegetable. In the present study only 9.2 percent of breast cancer patients consumed fruits ≥ 3 days/week, whereas 49.2 percent subjects of normal healthy controls had consumption pattern of fruits: daily-alternate days/week. These differences were statistically significant ($p < 0.001$). Consumption pattern of green leafy vegetables and other vegetables was also higher in control group as compared to the breast cancer patients. A vast amount of epidemiological evidence suggests that a relatively high fruit and vegetable intake is associated with a reduced risk of breast cancer (Potter, 1997). Researchers in other studies also reported that the intake of fruits and vegetable has been found to be inversely associated with the risk of breast cancer (Zhang et.al., 1999; Negri et al., 1991; Rohan et.al., 1993; Potischman et.al., 1999). A meta-analysis of 26 published studies on breast cancer was carried out. Relative risk estimates based upon a random effect model, for high consumption compared with low consumption was $RR = 0.75$ and $RR = 0.94$ for vegetable and fruits consumption, respectively (Gandivi et.al; 2000).

Table 1: Risk of breast cancer associated with consumption of fruits and vegetables

Variables	Breast Cancer (n= 65)	Controls (n= 65)	χ^2
Fruits			
≥3 days/week	6 (9.2)	32 (49.2)	29.18***
2- 1 days/week	19 (29.2)	18 (27.7)	
rare/ never	40 (61.5)	15 (23.1)	
Green leafy veg.			
≥3 days/week	30 (46.2)	56 (86.2)	24.04***
2- 1 days/week	19 (29.2)	3 (4.6)	
rare/ never	16 (24.6)	6 (9.2)	
Roots & Tubers			
≥3 days/week	54 (83.1)	50 (76.9)	2.80 NS
2- 1 days/week	5 (7.7)	11 (16.9)	
rare/ never	6 (9.2)	4 (6.2)	
Other vegetables			
≥3 days/week	23 (35.4)	35 (53.8)	21.84***
2- 1 days/week	19 (29.2)	28 (43.1)	
rare/ never	23 (35.4)	2 (3.1)	

Figures in parenthesis denote percentage, *** $p < 0.001$, #: significant, NS: Not Significant

Table 2: Risk of breast cancer associated with consumption of milk and milk products

Variables	Breast Cancer (n= 65)	Controls (n= 65)	χ^2
Milk			
≥3 days/week	38 (58.5)	43 (66.2)	2.34 NS
2- 1 days/week	12 (18.5)	6 (9.2)	
rare/ never	15 (23.1)	16 (24.6)	
Milk products			
≥3 days/week	33 (50.8)	32 (49.2)	8.27*
2- 1 days/week	9 (13.8)	21 (32.3)	
rare/ never	23 (35.4)	12 (18.5)	

Figures in parenthesis denote percentage, * $p < 0.05$, NS: Not Significant

Consumption of milk and milk products was higher in control group as compared to the breast cancer cases, but the difference was statistically significant only for the milk products (Table 2). Studies have reported an increase in the risk of breast cancer with increasing frequency of consumption of milk and milk products (Boyd et.al., 1993; Levi et al., 1993; Ewertz & Gill, 1990). Another case-control study was conducted in Italy amongst 250 women. It has been reported that subjects with consumption of whole milk of > 200 g/day had on RR of 2.0 (95% CI, 1.3 – 3.1) compared with those whose consumption was < 6 g/day. The risk was significantly increased for consumption of high fat, cheese; intake of > 41 g/ day was associated with a risk of 2.6 compared with intake of < 9 g/ day (Toniolo et.al; 1989)

There was no significant difference observed between the subjects according to the consumption pattern of meat and egg. Consumption of fish was statistically different among the subjects. An inverse association was observed with fish consumption (Table 3). Fish and fish oil are a rich source of n-3 fatty acids and the fat-soluble vitamins A and D (Passmore et.al., 1996). The n-3 fatty acids are important components of cell membranes and appear to have anti-inflammatory effects and inhibit in vitro the growth of colon, breast and prostate cancers (Simopoulos, 1991).

Table 3: Risk of breast cancer associated with the consumption of non- vegetarian diet

Variables	Breast Cancer (n= 65)	Controls (n= 65)	χ^2
Meat			
No	48 (73.8)	51 (78.5)	0.38
Yes	17 (26.2)	14 (21.5)	NS
Fish			
No	52 (80.0)	31 (47.7)	14.69***
Yes	13 (20.0)	34 (52.3)	
Egg			
No	34 (52.3)	31 (47.7)	0.27
Yes	31 (47.7)	34 (52.3)	NS

Figures in parenthesis denote percentage, *** $p < 0.001$, #: significant, NS: Not Significant

Higher number of breast cancer patients preferred fried foods, as compared to normal healthy controls. This difference was statistically highly significant ($p < 0.001$). Preference for spicy foods was not significantly different between the groups (Table 4). Other studies have also shown an increase in risk of breast cancer with high fat intake (Giovannucci et.al., 1993; Jain et al., 1994; Boyd et al., 2003; Cho et. al; 2003).

Table 4: Risk of breast cancer associated with the dietary habit

Variables	Breast Cancer (n= 65)	Controls (n= 65)	χ^2
Preference for fried foods			
No	19 (29.2)	41 (63.1)	14.98***
Yes	46 (70.8)	24 (36.9)	
Preference for spicy foods			
No	48 (73.8)	40 (61.5)	2.25
Yes	17 (26.2)	25 (38.5)	NS

Figures in parenthesis denote percentage, *** $p < 0.001$, #: significant, NS: Not Significant.

CONCLUSION

In conclusion, the present study suggests a positive association between low consumption of fruits, vegetables, fish and incidence of breast cancer. The reason behind this may be that natural fiber obtained from fruits, vegetables, and the n-3 fatty acids from fish may reduce cancer risk and/or reduce risk of cancer progression. So they appear to be protective factors against breast cancer. High consumption of fried foods has significant risk for breast cancer. This is a preliminary study to look at the influence of dietary factors among a sample of Indian women. Larger studies need to be planned for confirmation and also to look at the relative risk associated specifically with each of the associated etiological factors.

REFERENCES

- Boyd NF, Martin LJ, Noffel M, Lockwood GA, Trichler DL (1993) A meta-analysis of studies of dietary fat and breast cancer risk. *Br J cancer*, 68: 627-636.
- Boyd NF, Stone J, Vogt KN, Connelly BS, Martin LJ, Minkin S (2003) Dietary fat and breast cancer revised: a meta analysis of the published literature. *Br. J Cancer*, 89: 1672-85.
- Cho E, Spiegelman D, Hunter DJ, Chen WY, Stampfer MJ, Colditz GA, Willett WC (2003) Premenopausal fat intake and risk of breast cancer. *J Natl Cancer Institute*, 95:1079-85.
- Ewertz M, Gill C. Dietary factors and breast cancer risk in Denmark (1990) *Int J Cancer*, 46: 779-784.
- Gandini S, Merzenich H, Robertson C, Boyle P (2000) Meta analysis of studies on breast cancer risk and diet: the role of fruit and vegetable consumption and the intake of associated micronutrients. *Eur J Cancer*, 36: 636-646.
- Giovannucci E, Stampfer MJ, Colditz GA, Manson JE, Rosener BA, Longnecker M, Speizer FE, Willett WC (1993) A comparison of prospective and retrospective assessment of diet in the study of breast cancer. *Am J Epidemiol*, 137 : 502-511.
- Indian Council of Medical research (2001) Consolidated report of the population based cancer registries 1990-1996. Incidence and distribution of cancer. National Cancer Registry Programme. New Delhi: ICMR.
- Jain M, Miller AB, To T (1994) Premorbid diet and the prognosis of women with breast cancer. *J Natl Cancer Inst*, 86: 1390-1397.
- Kelsey JL, Gammon MD, John EM (1993) Reproductive factors and breast cancer. *Epidemiological Reviews*, 15:36-47.
- Krishnaswamy K & Polasa K (1995) Diet, Nutrition and Cancer-The Indian Scenario. *Indian J Med Res*, 102: 200-9.
- Levi F, Vecchia LC, Gulie C and Negri E (1993) Dietary factors and breast cancer risk in Vaud, Switzerland, *Nutr Cancer*, 19: 327-335.
- Mitra I, Badwe RA (1998) Breast Cancer In: Flow chart for diagnosis and staging of cancer in developed and developing countries. Badellino F and Gipponi (eds). UICC Publications.

- Negri E, La Vecchia C, Franceschi S, D'Avanzo B, Parazzini F (1991) Vegetable and fruit consumption and cancer risk. *Int J Cancer*, 48:350-384.
- Passmore R, Eastwood EA, Mills AR, et al. (1986) Meat, fish and eggs. Novel proteins. In: Davidson LSP, Passmore R & Eastwood MA. (eds). Davidson and Passmore Human Nutrition and Dietetics. Churchill Livingstone, Edinburgh. 205-10.
- Potischman N, Swanson CA, Coates RJ, Gammon MD, Brogan DR, Curtin J, Brinton LA (1999) Intake of food groups and associated micronutrient in relation to risk of early stage breast cancer. *Int J Cancer*, 82: 315-321.
- Potter JD (1997) Food, Nutrition and prevention of cancer: a global perspective. American Institute of Cancer Research, Washington DC. pp 111-117.
- Rohan TE, Howe GR, Friedenreich CM, Jain M, Miller AB (1993) Dietary fibre, Vitamin A, C and E and risk of breast cancer : a cohort study. *Cancer causes and controls*. 4: 29-37.
- Simopoulos AP (1991) Omega-3 fatty acids in health and disease and in growth and development. *Am J Clin Nutr*, 54: 438-63.
- Toniolo P, Riboli E, Protta F, Charrel M, Cappa MPA (1989) Calorie providing nutrients and risk of breast cancer. *J Natl Cancer Inst*, 81: 278-286.
- Zhang S, Hunter JD, Forman RM (1999) Dietary carotenoids and Vitamin A, C and E and the risk of breast cancer. *J Natl Cancer Inst*, 91 : 547-556.

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