

Impact of an Awareness Creation Programme on Consumption of Food Pattern among Adolescents

Research Article

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Abstract

Adolescents are more prone to changes in lifestyles and food habits and they also impel for more opportunity to assert food choices and expand or narrow healthy option. Hence, this research was planned to study the existing pattern of consuming unhealthy foods among adolescents and impact of an awareness programme. The study was conducted at Father Muller School of Nursing, Mangalore and Shanthiniketan Pre-University College, Chikkaballapur on 100 subjects from each institute during their mid-term of academic year. Demographic profile, food habits and knowledge regarding hazards of junk foods and other healthy habits were studied using a structured questionnaire. Nutrition intervention was carried out using powerpoint presentation, brochures in three sessions. The study showed that 75% of subjects were from urban background with 46% belonging to middle adolescence age group (15-16 years). Education level of parents on an average was above Pre-University level with family income more than Rs. 15,000/- per month. Food habits of the subjects showed that 37% were vegetarian and 63% were non-vegetarian. Subjects were in the practice of carrying packed lunch; however, few subjects consumed food from outside and spent around Rs. 80/- for junk foods on weekly basis. Peer pressure and media influence were the main reasons to consume food outside. Pre-test scores showed that 72% of the subjects had moderate knowledge about junk foods and eating habits and post-test scores showed 89% of the subjects were able to grasp adequate knowledge. The post-test scores were higher in comparison with pre-test scores, showing positive impact of education programme. The study brings out the need to create awareness in adolescents regarding healthy eating habits.

Keywords: Junk foods; Food behavior; Education programme; Nutritional knowledge

Introduction

Adolescent period is defined as transition of human being from childhood to adulthood involving physical, mental and emotional change [1]. WHO defines adolescents as persons in the age group of 10 to 19 years [2]. In India, adolescent population is estimated to be about 243 million [3]. The spurt out to adulthood gives rise to many metabolic changes in the body making provision of high demands for protein, fat, carbohydrate, minerals and vitamins, importantly all the metabolisms are accelerated by release of hormones [4]. Adolescents are more prone to change in lifestyles and food habits and they also impel for more opportunity to assert food choices and expand or narrow healthy options [5]. In addition, adolescents also exhibit unhealthy eating habits such as meal skipping and snacking on fast foods [6,7]. A study reported that adolescent girls associated

consumption of fast food with pleasure, friends, and independence, while they associated consumption of healthy food with parents and being at home [8]. These food behaviors may set in train unhealthy eating trends for adult life [9] and contribute to a number of health problems including overweight and obesity, metabolic syndrome, diabetes and cancers [10]. These unhealthy food habits may lead to deficiency disorders, and the prevalence of anemia is mentioned to be 69% among adolescent girls [11]. Micronutrient deficiency disorders in the adolescent phase results in growth retardation, low immunity and impaired reproductive functions [12]. The deficiencies may lead to stress and fatigue. Stress often results in the abuse of tobacco and other habits like drug consumption [13]. Adolescents dietary behaviors will be extended even after becoming adults and establishing new households that are independent of their parents and family [14]. Improvement of the food habits of adolescents

is therefore one avenue to reduce the prevalence of these health problems.

The rapid proliferation of multinational fast food companies in the Indian food market and the influence of Western culture have replaced traditional home cooked meals with ready-to-eat, processed foods in urban Indian households [15] Junk food is the term given to food that is high in calories but low in other nutritional contents [16] Junk foods have no or very less nutritional value and irrespective of the way they are marketed, they are not healthy to consume [17] Peer pressure, parents' dietary habits and media exposure influence the dietary intake of this age group [18] The consumption of fast foods has been increased around the world over last 50 years [19] Foods such as French fries, burgers and chips, which constitutes huge amount of fat and salt are harmful for health. Research has shown that junk food consumption is linked to behavioral disorders [20]. Many people, especially children, suffer from ADHD (Attention deficit hyperactive disorder) due to additives and added sugar in junk food [21] A strong positive association has been reported between fast food consumption and both weight gain and insulin resistance, suggesting that fast food increases the risks of obesity and type 2 diabetes [22]

Nutrition education is the combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoptions of food choices and other food and nutrition related behaviors conducive to health and well-being[23]. Nutrition education is delivered through multiple venues and involves activities at the individual, community and policy levels. The importance of nutrition education as a means for improving the nutrition of the community in the developing countries has been increasingly realized during recent years [24]. National Nutrition Monitoring Bureau (NNMB) reports only 14% of adolescent population are exposed to nutrition education [25].

All the above prospects motivated in studying the impact of nutrition education programme on consumption of unhealthy foods in adolescents with the following objectives,

- a. To assess the consumption pattern and knowledge level regarding unhealthy processed foods
- b. To create awareness regarding unhealthy foods through nutrition education programme and assess the impact of the same.

Methods

Research Design and Sampling

Food habit and lifestyle survey was conducted among adolescent children from Father Muller School of Nursing, Mangalore and Shanthiniketan Pre-University College, Chikkaballapur during their mid-term of academic session. The sample was randomly chosen according to the cluster by interviewing all students in selected classes to obtain a sample in excess of the calculated sample size. Accordingly, convenient sampling of 100 members was considered for the study inclusive of both the genders. However, the percentages of female subjects were more as they were more co-operative and schedule was feasible. Initially, adolescents were informed of the study and asked verbally for their consent to participate. Subjects

with examining the clinical features and confirmation of no history of any chronic disease and surgeries were considered for the study. The considered subjects were given an informed to be signed by parents or guardians, which included a brief explanation of the research objectives and methodology, as well as the assurance that there would be no identification of participants.

Survey instrument

A descriptive food questionnaire was designed by the researchers to study the trends of fast food consumption. A face-to-face interview questionnaire was performed with the respondents after defining fast food and giving them an overview about the study. Questions regarding vegetarianism, meal consumption patterns, food and beverage intake, snacking practices, household food rules, home food environment, secondary school nutrition curriculum, school canteen, acquisition of food skills, exposure to media, consumerism, family characteristics and demographics were included in the Questionnaire. The questionnaire also investigated the trends of fast food consumption.

Development of questionnaires

The descriptive questionnaire was developed to study the demographic profile and food habits of adolescent children which highlighted on vegetarianism, meal consumption patterns, food and beverage intake, snacking practices, household food rules, home food environment, school canteen, acquisition of food skills, exposure to media, consumerism, family characteristics, dietary habits and lifestyle. Face validity for the questionnaire was assessed by using a pilot-tested group of 10 participants from the target population to ensure that the questions are understandable. A face-to-face interview questionnaire was performed with the respondents after defining junk food and giving them an overview about the study.

Intervention Programme

Prior to the commencement of intervention programme, the school authorities were given a brief oral introduction to the survey procedures and nutrition education programme. Nutrition education programme regarding the ill effects of unhealthy foods was conducted using different modules like flash cards, Power Point presentation and Brochures. Power point presentations included pictorial as well as video representation for better understanding of subjects. The intervention programme was repeated for every fifteen days with different modules. It was started with awareness creating through brochure, flash cards were distributed and later a powerpoint presentation was done which included video representation also.

Knowledge Test score

Along with the descriptive food questionnaire, nutritional knowledge test was designed by the researchers to study the knowledge regarding the effects of junk food consumption of the subjects. The test was provided in a printed sheet of 20 questions which also included multiple choice questions. Each question carried 1 score, subjects scoring less than 7 were considered as inadequate level of knowledge, accordingly, subjects scoring 7 and below 14 were considered moderate level of knowledge and above 13 were considered as adequate level of knowledge. Then the knowledge tests were expressed in percentage and tabulated.

Data Analysis

Socio-demographic, diet, and nutritional knowledge levels of the adolescents were collected and computed. The data were expressed in the form of percentage. Table 1 shows the association of demographic profile of subjects with educational level of parents and family income. Table 2 shows the food habits, meal pattern and related to family income and expenditure towards junk foods. Pre-nutritional

Table 1: Demographic profile of respondents (Percent of subjects)

Parameters	Variables	Percent (%)
Area of living	Rural	25
	Urban	75
Gender	Male	21
	Female	79
Age-wise distribution (Age in years)	14-15	15
	15-16	46
	16-17	29
	17-18	10
Educational level of respondents	Pre-Univ.- I	39
	Pre-Univ.- II	61
Educational level of Mother	6-10 th Std	35
	Pre-University College	24
Educational level of Father	Graduate	26
	Post - Graduate	15
	6-10 th Std	14
	Pre-University College	38
Income	Graduate	29
	Post - Graduate	19
	10000-15000/- per month	9
	15000/- and Above per month	91

Table 2: Food behavior of Subjects.

Parameter	Variable	Percentage (%)
Food habits	Vegetarians	37
	Non-vegetarians	63
No of meals /day	Two meals/day	23
	Three meals/day	61
	Four meals/day	4
Packed lunch	Yes	78
	No	22
Beverage consumption	Tea	26
	Coffee	18
	Milk	33
Eating away from home	Daily	25
	Once a week	16
	Twice a week	59
Source of eating out	Hotel	36
	Street vendors	12
	Fast food center	44
	Bakery	8
Foods chosen	Cake & biscuits	32
	Burger & pizza	13
	Chips & fried foods	46
	Noodles & Gobi	9
Weekly expenditure on food	Rs. 40/-	9
	Rs. 60/-	25
	Rs. 80/-	62

knowledge were recorded and plotted in the graph. Comparison between pre-test and post test scores were represented in the form of graph.

Results and Discussion

Demographic profile of respondents

Demographic profiles of subjects are represented in Table 1. The study showed that 75% of subjects are from urban background. Globalization and urbanization have greatly affected eating habits and forced many people to consume fancy and high calorie fast foods [26,27]. Female subjects were selected keeping view of availability and co-operation and participated in larger number than male subjects. Of the total participants, 46% belonged to middle adolescence age group (15-16 years) as compared to 15% who belonged to early adolescence age group (14-15 years) and 29% belonged to older adolescence age group (16-17 years) and only 10% were from 17-18 years age group. Few researchers in India have studied the similar age group regarding junk food consumption [3,26,27]. Most of the subjects were studying in II year PUC (Pre-University Course) while the remaining were in I PUC of their Pre-University College. Education level of mothers showed that more than 50% were educated up to Pre- University level, however, the education level of fathers showed that more than 50% were educated above Pre-University level. Researcher have worked on parenting and report that mothers are more involved in childcare and formal support than fathers, [28] accordingly, the adolescence food habits will be monitored more by mothers than fathers although they are more educated. Majority (91%) of the subject's family income was more than Rs. 15,000/- per month. Studies reveal that with increase in income level contribution to the purchasing power parity exchange rate is more [29].

Food behavior of subjects

Food behavior data of adolescents are presented in Table 2. Food habits of the subjects showed that 37% were vegetarian and 63% were non-vegetarian. A study conducted in rural parts of North India also reported that 38% of adolescents were vegetarian and remaining were non- vegetarian [30]. Most of the subjects (61%) followed 3 meal pattern, remaining followed 2 (23%) meal pattern and very few subjects (4%) followed 4 meal pattern. Adolescent girls are said to be the highest proportion of meal skippers [31]. Subjects were in the practice of carrying packed lunch; however, few subjects consumed food from outside. Dissimilarities were not observed in subjects towards their liking for beverages, 33% of subjects consumed only milk, whereas 26% consumed tea and remaining preferred coffee. None of the subjects reported about consuming carbonated drinks, however, a study conducted abroad reports carbonated soft drinks were the main beverage usually consumed by adolescents (89%) but other beverages such as coffee, tea, sweetened fruit drinks, or energy drinks were rarely consumed [8]. More than 50% of the subjects had the habit of consuming food outside twice a week; however, 25% of the subjects had the habit of consuming food outside daily. Alfari et al[8] reported 52.8% of adolescent girls consumed outside food twice a week which was higher compared to our study. Majority of the source of food consumption outside was from fast-food centers. Alfari et al[8] revealed that source of food consumption outside was

from restaurants, which could be due to lack of fast food centers. Food choices of the subjects from outside were chips, fried foods followed by cake, biscuits, burger, pizza, noodles and Gobi-manchurian(fried spicy cauliflower dish). Cohen et al[32] indicated that 86% of girls consumed nearly double the maximum recommended calories from snack foods which included burgers, chicken nuggets, and pizza averaging nearly four times per week. Sahu & Das[26] also revealed that majority of adolescents consumed junk food such as bakery products, chips, carbonated drinks infrequently. A significantly higher rate of adolescent girls reported eating pizza (49.3%), followed by french fries (29.6%) [8]. Younis & Eljamay[33] also reported 54% of adolescents frequently consumed chips followed by French fries, Pizza, fried chicken, hamburger and chocolate. A study conducted in Kolkata city showed evidence of excess intakes of energy-dense, nutrient-poor foods and inadequate intakes of nutrient-dense foods by adolescents [27]. Around Rs. 80/- was spent by 62% of the subjects for junk foods on weekly basis. In support to our study, another researcher reported that adolescents spent money on fast food ranging from Rs. 200-1000 or above per month [34].

Awareness regarding Healthy Food Habits

There were mixed opinion about food sold outside and also junk foods although their junk food consumption was high. Around 25% of the subjects (Figure 1) were aware that food sold outside are unsafe and may cause infection and harmful to health causing diseases, however, remaining subjects were not aware of the health hazards caused by outside foods especially junk foods, they had the impression that it is satiating. Adolescents from Ireland were reported to be well aware of the competing and contradictory messages concerning food and weight and were conscious of their adverse effects on their own and their peers' lives, however, they were not able to control the junk food consumption [26,35]. Peer pressure and media influence are the main reasons to consume food outside (Figure 2). In accordance with our studies, other researchers also reported the positive association of unhealthy food consumption and time spent in screen-based behaviors and peer pressure [36,37]. Few of the subjects (Figure 3) studied were not aware that unclean water causes diseases. Alfari et al⁸ reported that adolescent girls found that fast food meals are taste delicious and more than half of the girls (53.1%) believed that fast food has either high or acceptable nutritional value.

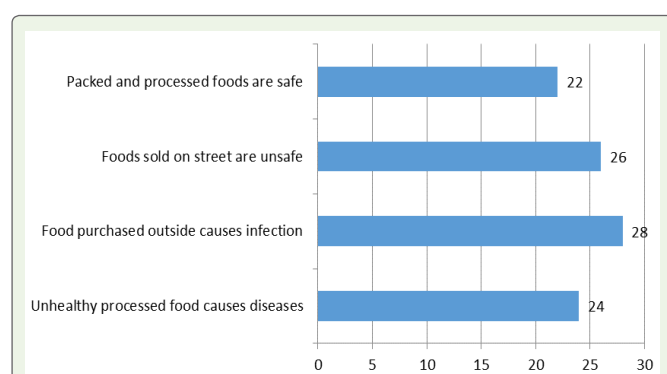


Figure 1: Subject's response regarding safety of commercially sold foods. Note: X axis: Percentage of Subjects.

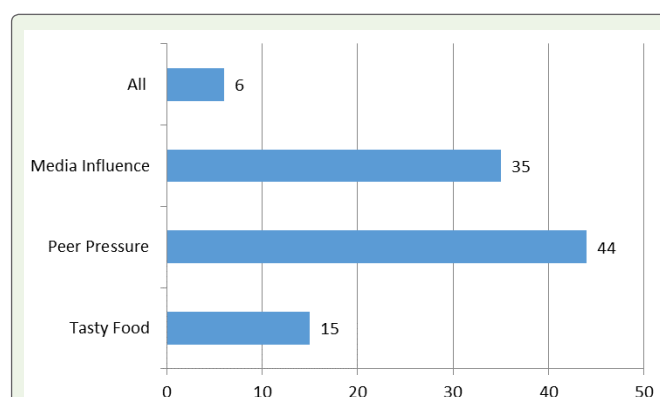


Figure 2: Percentage distribution of subjects according to reason for eating outside. Note: X axis: Percentage of Subjects.

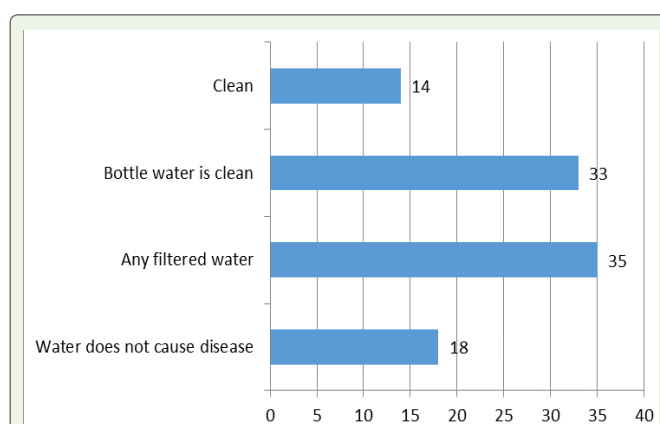


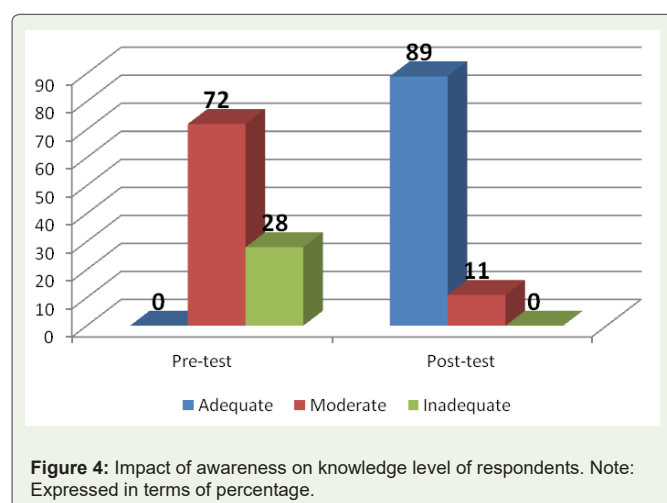
Figure 3: Subject's response regarding safety of drinking water. Note: X axis: Percentage of Subjects.

Assessment of nutritional knowledge of the subjects

Assessment of nutritional knowledge prior to intervention programme showed that 72% of the subjects had moderate knowledge about junk foods and eating habits. Around 25% of the subjects had inadequate knowledge prior to intervention programme, however, after intervention programme 89% of the subjects were able to grasp adequate knowledge (Figure 4). The intervention programme showed promising results and potential in executing more of these programmes in future studies. Mandeep Kaur [38] also reported that in a post-test majority of adolescent children (20%) had moderately adequate knowledge and 80% had adequate knowledge which was supported by computer assisted teaching. Another study in accordance with our study reported that after the planned instructional module regarding knowledge about health hazards of junk foods, 83% of adolescents had adequate knowledge [39]. Structured teaching program helps to gain knowledge and increase the scores from 0-15 towards average and good scores [40].

Scenario and impact of intervention programme

Nutritional requirements are higher among adolescents than at any other period of life, inadequate diet intake at this age leads to



stunted growth and delayed sexual maturation [41]. Globalization and urbanization have greatly affected one's eating habits and forced many people to consume fancy and high calorie fast foods [26]. Dietary patterns today have more energy-dense foods such as fast food and sugar-sweetened beverages at the expense of nutrient dense foods such as fruits and vegetables, especially among adolescents and young adults. This study found that adolescents frequently consumed junk foods outside rather than home. Foods high in calories appear to be the snack of choice like chips and burger. Even though these low-nutrient snacks are recommended to be limited in the diet, they are selected frequently. Poorly timed snacks that are high in calories and low in nutrients may blunt the adolescent's mealtime appetite and replace nutritious foods [42]. Adolescents are also increasingly exposed to a wide range of influences beyond the family environment including through school, the local community, media and social media [36]. Food is frequently interwoven due to peer pressure and media effect with catchy advertisements promoted by celebrities leading to adaptation of unhealthy food habits. Habits like dieting, exercising end up in incorrect ways consuming low quality protein supplements without proper guidance which may lead to complications like renal failure, anorexia nervosa, lipid abnormalities, hyperinsulinemia, and hypertension, etc [43]. A study conducted in northern India reported that adolescents paid more attention to their appearance to remain slim among girls and well-built to appear among boys for which they did not adopt healthy eating habits. These issues can be reduced by routine screening and nutritional education. Parents have greater responsibility in guiding their children in identification of nutritious foods and combating the junk food consumption. Considering the likely tracking of food behaviors into adulthood there is an immediate need to modify such behaviors during this pubertal phase, thus, enabling adolescents to develop healthy food practices for their adulthood. [27] Not only the nutrition education for adolescents, there is a need for education for food handlers in restaurants and other fast foods in order to maintain hygiene and further avoid infections. Several studies have also reported that food handlers in restaurants often had a lack of knowledge and no training regarding food hygiene and safety [8]. That suggests a need for education training courses targeting food handlers to increase their awareness regarding safe food-handling practices [45].

Limitations of the study

The study focused on nutritional screening relevant to food habits in adolescents, however, there has been little investigation of nutrition screening in community-dwelling populations of adolescents of different culture and socio-economic conditions. Nutrition intervention and knowledge score was used as the tool for the study, however, it does not confirm individual data especially after intervention. Another limitation of the study is frequent continuity data cannot be collected after intervention with more frequency of intervals.

Conclusions

Consumption of junk food in adolescent children from Father Muller School of Nursing, Mangalore and Shanthiniketan Pre-University College, Chikkaballapur was highly prevalent. They were in the habit of taking some sort of junk food item. The common junk food items bought by the adolescents using their pocket money were cake, chips, biscuits, burger, pizza, noodles and Gobi-manchurian. General awareness about the ill effects of junk food amongst the adolescents was average and there was gap between their knowledge and practice in eating behavior due to poor impact of education and awareness among the subjects. Moreover, the peer pressure, and media had an influence over purchase of junk foods. However, on nutrition education programme, the post-test knowledge score increased compared to pre-test knowledge score. It can be concluded that any different teaching programme conducted regarding health hazards of junk foods will enable them to practice healthy eating habits.

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