Study of Consumption, Behavior and Awareness of Fast Food Among Urban Students of Late Adolescent age Group with Reference to BMI, Activity Profile and Socio-Economic Status

Internship Training
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Under the guidance of
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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Sugandha Gupta** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management Research, Jaipur has undergone internship training at **NRHM, Gujarat** from **February 2014** to **May 2014**

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all his future endeavors.

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This certificate is awarded to

Sugandha Gupta

In recognition of having successfully completed her

Internship in the department of

Corporation Programme Management Unit

And has successfully completed her Project on

Study of Consumption, Behavior and Awareness of Fast Food among late adolescent age group with respect to BMI, Activity Profile and Socio-economic status of urban students

From February 2014 to May 2014

Organization: Surat Municipal Corporation

She comes across as a committed, sincere & diligent person

who has a strong drive & zeal for learning

We wish her all the best for future endeavors

From

13/5

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I/C Dy. Commissioner (H&H)
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This is to certify that the dissertation titled **Study of consumption, behavior and awareness among urban students of late adolescent age group with respect to their BMI, Acitivty Profile and Socio-economic status** and submitted by **Sugandha Gupta** Enrollment No. **17-1387** under the supervision of **Dr. Vinod Kumar** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from **February 2014** to **May 2014** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

Contents

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BMI	Body Mass Index
BPL	Below Poverty Line
CPC	Corporation Programme Coordinator
Dy. MOH	Deputy. Medical Officer of Health
ICDS	Integrated Child Development Services
IMR	Infant Mortality Rate
MMR	Maternal Mortality Ratio
MOH	Medical Officer of Health
NFHS	National Family Health Survey
NRHM	National Rural Health Mission
NUHM	National Urban Health Mission
PIP	Project Implementation Plan
RCH	Reproductive and Child Health
RCHO	Reproductive Child Health Officer
SMC	Surat Municipal Corporation
SRS	Sample Registration System
TFR	Total Fertility Rate
U-PHC	Urban- Primary Health Centre
VCNC	Village Child Nutrition Centre

PART II

DISSERTATION REPORT

Executive Summary

There has been in both developed and developing countries a substantial increase in advertising of foods high in fat, sugar and salt. Much of this targets adolescents. Correspondingly, there is a disturbingly rapid increase in the incidence of childhood obesity. As worries about this new pandemic sharpen, so does the search for ways of changing consumer behavior. Adolescents are especially vulnerable to television food advertising because they are less able than adults to fully understand its persuasive techniques and to therefore judge it critically. Advertising regulations and guidelines at national and international levels seek to prohibit the exploitation of children's credulity, lack of experience or sense of loyalty and to protect them from high pressure selling. Many countries have introduced restrictions on the marketing of tobacco and alcohol with respect to children. Yet fast food advertising, despite its relationship to child health and nutrition, has received little attention at a regulatory level. But before formulating intervention strategies, it is important to understand the forces driving consumer behavior and the link between consumption, awareness and behavior.

The study aimed at focusing on behaviour and awareness of fast food consumption. The objectives of the study were to determine the effect of fast food consumption upon BMI of adolescents, to establish relationship between the consumption and behaviour of fast food with the lifestyle of urban students and to know the awareness level of fast food among urban students affects the behaviour towards their consumption

Study was conducted in three schools and two colleges of Surat city in Gujarat. The study participants were the students of 10^{th} to 12^{th} Students in higher secondary school and first and

second year college students in Surat city in Gujarat. Sampling type was convenient random sampling.

A structured questionnaire was used as a data collection tools. This study was a questionnaire-based survey. A self-developed, pretested questionnaire consisting of both open-ended and closed-ended items were used. The study population comprised school and college students of the Surat city. These were school going boys and girls, all Indian nationals. Total completed questionnaire received was 350.

Among the boys and girls participated in this study, fast food consumption in boys was found to be more prevalent as shown in the table. Prevalence of consumption of fast food was more among the boys than girls. Prevalence of fast food consumption among school going students was found be a little lower than college going students. Students in the age group 18-19 years were found consuming more fast food than any other age group, age group 15-17 stands for the second highest in number. On the basis of family type, the prevalence of fast food consumption students living in hostel/ PG was a little higher than the students living with their families. Prevalence of fast food consumption was higher during morning and evening time. Lower income group had been found consuming fast food more than other higher income groups.

Among the boys and girls participated in this study, fast food consumption in boys was found to be more prevalent as shown in the table. Almost all the students were asked if they consume fast food with their family at home, 44% of the students said yes, that they consume fast food cooked at home, and the students those who said no were 55% who consume fast food cooked outside (mess, food court, canteen, fast food restaurant). 50 % of school going students preferred to accompany with their parents/ family to eat fast food whereas 74% of college going students

preferred to accompany with their friends. 43% students said that their parents have no objection with their fast food consumption. When the reasons were asked, more than half i.e. 62.86% of respondents found fast food very tasty whereas 21.14% respondents found variations in the menu of the fast food. The consumption of fast food was more in schools/ college or in fast food restaurants as compared to their consumption of fast food at home. Other factors accounted for very small number.

According to this study, among the sample population the initiation of this habit was occurring mainly with friends accompanying them in schools, colleges and fast food restaurants. If major steps are taken against fast food consumption and banning of fast food in schools is implemented then there is a possibility that these kinds of fast food consuming habits will not be adopted by a person in his lifetime and this can save many lives and averting the risk of exposing a lot of people to many fast food leading diseases.

Background

Surat is a city that is famous for being the city for rest of Lord Krishna at the time of Mahabharata. The traditional Surat food is restricted to vegetarian foods, but with the introduction of modern food culture, the classic dishes are being transformed into contemporary dishes with the use of modern ingredients. The uniqueness of Surat food can be implicated with a Gujarati proverb that says it‘s fortunate enough to have food in Surat. Food in Surat typically belongs to the Indian Gujarati cuisine[4]. The food culture in Surat involves traditional home cooking, but street food also enjoys a higher popularity in the city. Classic dishes such as Khaman, Khamni, Khandvi, Idada, Vadapav, Dabeli etc are day to day delicacies of Surat. Here the restaurants are usually vegetarian and serve typical Gujarati and Surti cuisine. As

urbanization and industrialization speed up in Gujarat, the fast-food market, too, has expanded dramatically. However, with the introduction of Western culture, the fast food and continental cuisines are also gaining popularity. In Gujarat, global restaurant chains like Subway, KFC and McDonalds are not just experimenting with vegetarian food but also offering Jain food. They generally lead a sedentary life, and most of their outings, celebrations and activities revolve around eating. People in the state have also taken to eating out a lot; many families eat out two to three times per week, Gujaratis start eating and thinking about food from the time of breakfast itself. Being at home or school/college, the period before and after lunch are snack times. All this add ups to more than one-third of the daily calorie needs. They consume mostly unhealthy, imbalanced calorie-rich food.

2.1 Introduction

While the adolescents around the world are eating food with high content of calories, they are not necessarily eating healthier food. Fast food intake has increased substantially in recent decades (Cook, Rutishauser, & Seelig, 2001; Jahns, Siega-Riz, & Popkin, 2001), resulting in reduced diet quality and additional caloric intake (Jahns et al., 2001)[5]. This has implications for both immediate and long-term health outcomes and is thought to be one of many interrelated factors linked to increased body mass index (BMI) and rates of obesity in young people (Nicklas, Baranowski, Cullen, & Berenson, 2001; Spruijt- Metz, 2011). Foods eaten out-of-home by adolescents is typically consumed in school and peer contexts, and adolescent reports confirm that lunches and snacks are often eaten with friends (Feunekes, de Graaf, Meyboom, & van Staveren, 1998)[6].

According to this study, fast food is referred to any food, which is low in essential nutrients and high in everything else—in particular calories and sodium. Fast foods contain little or no proteins, vitamins or minerals but are rich in salt, sugar, fats and are high in energy (calories). Highly salted like chips, high in refined carbohydrates (empty calories) like candy, soft drinks and high in saturated fats like cake and chocolates[7].

Although adolescents‘ diets are strongly governed by their family food environment (Patrick & Nicklas, 2005), about half of their consumption of low-nutrient, energy-dense fast foods occurs out of home (Briefel, Wilson, & Gleason, 2009)[8]. Fast food restaurants or quick-service establishments are often the overall choice for food available for them especially when away from home. This frequent consumption of fast food has adverse effects on nutrition because of excessive content of energy and fat and low nutritional value. The fast food link was stronger among the late adolescents group than among the young children, which may be because adolescents have more independence, money and control over what they eat. Worldwide, adolescents consume more fat than they need. Globalization and free trade have brought fast-food eating establishments to most countries, especially to developing nations. Vegetable oils and fats are easily available and affordable, and more food products high in fat contents are easily accessible even to those of low-income persons in developing countries. The challenge is to teach this age group to make wise food choices when visiting fast food establishments by generating awareness about the ill-effects of such foods.

When children are young, their parents and families have greater control over what their children are eating in their daily routine. As they get older, their friends and school environment, have a greater impact on what they eat. What they eat in their early adolescence, they are dependent on their cafeteria environment, teacher participation, administrative support, peer pressure, cafeteria

staff, and the quality of food choices that are offered to them in schools. But when they reach to the late adolescent age, these adolescents have more independence, money and control over what they eat in their routine. Due to their busy schedules, many adolescents start skipping meals. When they skip meals, they are more likely to grab fast food from a restaurant, or a store convenient to them[9].

The increase in popularity of television viewing and internet surfing, and the urbanization of cities has account for adolescents adopting more sedentary lifestyles[10]. Television, or more precisely television food advertising, has been singled out as the most easily modifiable influential factor on diet. Consumer organizations recognize that advertising can be a useful source of information to consumers. However, advertising is not an impartial source of information since its essential aim is to persuade rather than inform. Moreover, consumption of fast food is associated with other poor nutritional habits: surveys show at the beginning of the twenty-first century, socioeconomic trends, such as longer work hours and busy schedules, more women employed outside the home, and a greater number of two-parent families have both parents in the workforce have changed the way families obtain their meals[11]. As parents experience busier schedules and lifestyles, they demand convenience for their family meals. Food manufacturers and franchisers take advantage of this profit-making opportunity to produce foods, snacks, and beverages; more convenient and rich in fat and calories content. Fast food restaurants spent as much as marketers of juices, non-carbonated beverages and snack foods combined, and nearly two and a half times the amount spent for candy and frozen desserts[12]. A "supersized combo meal" will probably include very few essential nutrients but may include high intake of calories. The consumption of fast food is fostered among adolescents because of these reasons and inexpensive prices relative to more traditional home-style restaurants.

Life style has greatly contributed to obesity among adolescent over the last five years and obesity have been reported to be physically less active, more home-bound, spending more time on internet, playing video games and watching TV, as well as having easy access to fast foods in urban settings[13]. This age group faces a dilemma in a society that values youthfulness and thinness but encourages a lifestyle of sedentary convenience that includes decrease in physical activity, as well as increase in consumption of fast foods rich in fat and calories content, making it an important issue of concern because such eating pattern is linked to chronic diseases, like obesity, coronary heart disease, osteoporosis, arthritis, liver dysfunction, type 2 diabetes, kidney disease, high blood pressure or hypertension, and diet-related cancers later in life[14]. These societal pressures lead to engage in disordered eating behaviours, including extreme dieting and consequently, most of them suffer from some form of eating disorder.

The Major Contents[15] in Fast Food is:

a) *Carbohydrates:* The free sugar content has generally been found to be high in carbonated beverages and desserts offered by the fast food chains. The desserts and shakes offered by KFC and McDonalds invariably contain very high sugar content (Official websites‘ information).

b) *Fats:* Fast foods like potato chips, burgers, pizza, fried chicken etc. have high fats content. The link between saturated fat and trans-fat and increased risk of heart disease is well established. There is also evidence that the risk of type 2 diabetes is directly associated with consumption of saturated fat and trans-fat and inversely associated with polyunsaturated fat from vegetable sources.

c) *Trans Fat:* It is the common name for unsaturated fat with *trans*-isomer (E-isomer) fatty acid(s). Trans fatty acids (TFA) are the geometrical isomers of monounsaturated (MUFA) and polyunsaturated (PUFA) fatty acids having at least one non-conjugated,(interrupted by at least

one methylene group), carbon-carbon double bond in the *trans* configuration rather than the more common *cis* configuration. The *trans* configuration has an effect on the functional and physiochemical properties of these fatty acids which in turn effects their metabolism in humans. High levels of TFA are a public health concern due to some evidence associating TFA with coronary heart disease. There is also evidence that the risk of type 2 diabetes is directly associated with consumption of saturated fat and trans-fat and inversely associated with polyunsaturated fat from vegetable sources.

d) *Salt:* The amount of dietary salt consumed is an important determinant of blood pressure levels and overall cardiovascular risk. Salt intake should not be more than 6 g per person per day.

In recent years, there has been a marked increase in the rates of these non communicable diseases in India that has been attributed to unhealthy lifestyle practices associated with the introduction of Western-style fast foods that are higher in fat and refined carbohydrates. It is therefore important to encourage the young people to adopt a physically active lifestyle and provide healthful eating habits, and to try to motivate them to become healthier individuals[16]. In addition, focusing on the public policy to limit fast foods in schools and to encourage schools and families to provide healthful food choices for their children can also play a vital role. Empowering individuals, families and communities with knowledge and skills to change their eating and physical activity patterns is imperative. However, knowledge is only the beginning. People must live in environments that support healthy eating and physical activity. It will take all of us working together in schools, worksites, faith communities, health care and other community organizations, to create and support environments that make healthy eating and physical activity possible for all Surti's'[17].

2.1.1 Definitions:

- *BMI:* Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2)[44].

Calculation of BMI = Weight (kg)/ Height (m)*Height (m)

Table 1: the International Classification of adult underweight, Overweight and obesity according to BMI

Classification	BMI(kg/m^2)	
	Principal cut-off points	Additional cut-off points
Underweight	**<18.50**	**<18.50**
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	**18.50 - 24.99**	**18.50 - 22.99**
		23.00 - 24.99
Overweight	**≥25.00**	**≥25.00**
Pre-obese	25.00 - 29.99	25.00 - 27.49
		27.50 - 29.99
Obese	**≥30.00**	**≥30.00**
Obese class I	30.00 - 34.99	30.00 - 32.49
		32.50 - 34.99
Obese class II	35.00 - 39.99	35.00 - 37.49
		37.50 - 39.99
Obese class III	≥40.00	≥40.00

*Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.

Weight and Height is asked from the respondent in the questionnaire and by applying the BMI formula, BMI is calculated individually.

- *Fast Food:* Fast foods are characterized as quick, easily accessible and cheap alternatives to home-cooked meals, according to the National Institutes of Health (NIH). They also tend to be high in saturated fat, sugar, salt and calories. According to the NIH, many fast food chains have

responded to growing public awareness about nutrition by offering some food that is lower in fat and calories than their normal fare[45]

2.2 Review of Literature

Physical activity, sedentary behaviors and dietary habits among Saudi adolescents relative to age, gender and region[18]*:* **Hazzaa M Al-Hazzaa**, **Nada A Abahussain**, **Hana I Al-Sobayel**, **Dina M Qahwaji** and **Abdulrahman O Musaiger**. A very high proportion (84% for males and 91.2% for females) of Saudi adolescents spent more than 2 hours on screen time daily and almost half of the males and three-quarters of the females did not meet daily physical activity guidelines.

Behavioral factors related to overweight and obesity among adolescents[19]*:* Pankaj Kumar Mandal (MD), Seshadri Kole (MD), Sarmila Mallik (MD), Nirmalya Manna (MD), Pramit Ghosh (MD), Samir Dasgupta (MD). A cross-sectional study conducted in an urban area of West Bengal, India that showed that prevalence of overweight/obesity among the study subjects was 20.5% and consumption of fast food, sedentary life style, higher socio economic status, consumption of alcohol and residing in a nuclear family were identified as risk factors of adolescent overweight and obesity.

Exploring fast food consumption behaviors and social influence[20]*:* Emily Brindal: The study showed that both environmental and social factors have influence on amount of consumption of fast food. Men and women were influenced differently with their eating environment i.e. multiple social factors occur.

Prevalence of overweight and obesity among the urban adolescent English Medium School girls of Kolkata, India[21]*:* Arpita Mandal (Nandi), Gopal Chandra Mandal: The overall prevalence rates of overweight and obesity were 28.5% and 4.2% respectively. The rate of overweight was the highest when compared with that of different parts of India, including Kolkata, and also when compared to rates from the USA and Great Britain

A report was prepared to describe School health guidelines to promote healthy eating and physical activity[22]: Ursula E. Bauer: This report describes school health guidelines for promoting healthy eating and physical activity, including coordination of school policies and practices; supportive environments; school nutrition services; physical education and physical activity programs; health education; health, mental health, and social services; family and community involvement; school employee wellness; and professional development for school staff members.

Study of School environment and prevalence of obesity & its predictors among adolescent (10-13years) belonging to a private school in an urban Indian city[23]*:* Mehan Meenakshi, Munshi Aparna, Surabhi Somila, Bhatt Trushna, Kantharia Neha: Current framework of school lacked clear health & nutrition policies. Canteen food service offered unhealthy food. Teachers had insufficient knowledge about healthy behaviors among children. Prevalence of overweight & obesity was 23.5%. Cumulative presence of >3 risk behaviors of obesity was significantly associated with its development (OR 2.07, 95% CI). Mean consumption of sweetened carbonated beverages by overweight and obese subjects was significantly higher ($p<0.05$) than non-obese.

Influences on consumption of soft drinks and fast foods in adolescents[24]*:* Denney-Wilson E, Crawford D, Dobbins T, Hardy L, Okely AD. This study sought to examine the influences on

soft drink and fast food consumption among adolescents as part of a cross-sectional survey of 2,719 adolescents (aged 11-16) from 93 randomly selected schools in New South Wales, Australia. A quarter of students reported choosing soft drinks instead of water or milk, and around 40% agreed that soft drink was usually available in their homes. Availability in the home and drinking soft drinks with meals was most strongly associated with consumption in all age groups. Fast food consumption was higher among boys than girls in all age groups. Convenience and value for money yielded the strongest associations with fast food consumption in boys, while preferring fast food to meals at home and preferring to "upsize" meals were most strongly associated with consumption in girls.

To Study the Prevalence of Anaemia in Young Males and Females with Respect to the Age, Body Mass Index (BMI), Activity Profile and the Socioeconomic Status in Rural Punjab[25]*:* Vitull K. Gupta, arun Kumar maria, rajiV Kumar, jaGjeet SinGh Bahia, Sonia arora et al. Both males and females who were in the younger age group, who were underweight, who belonged to a lower socio-economic status and who had a low activity life style, had a higher prevalence of anaemia.

Consumer perception about fast food in India: an exploratory study[26]*:* Anita Goyal, N.P. Singh. The frequency of visiting the fast food outlets relates with the ages of the consumers as well as the income affects the spending habits of an individual. Respondents are of the opinion that the fast food industry should involve the practice of using the healthy and nutritious food items.

Prevalence of Fast Food Intake among Urban Adolescent Students[27]*:* Dr. Naheed Vaida: The study revealed that more than one tenth of adolescents were overweight, making it a hidden problem that causes various health diseases.

A multi-country survey of the influence of television advertisements on children[28]*: Junk Food Generation:* Dr. S. Sothi Rachagan: This report outlines the major findings from studies conducted on the influence of televised food ads on children, drawing primarily upon the results from a survey conducted by Consumers International Asia Pacific Office in six Asian countries - India, Indonesia, Malaysia, Pakistan, the Philippines and South Korea.

Caloric Intake from Fast Food among Adults[29]*:* Cheryl D. Fryar, M.S.P.H., and R. Bethene Ervin, Ph.D., R.D: United States, 2007–2010: As lifestyles become more hectic, fast-food consumption has become a growing part of the American diet. Fast food is food usually sold at eating establishments for quick availability or takeout. More than one-third of U.S. adults are obese, and frequent fast-food consumption has been shown to contribute to weight gain. This report presents the %age of calories consumed from fast food by adults in the United States, including differences by socio-demographic characteristics and weight status

Junk Food Intake in Adolescents[30]*: Processes and Mechanisms Driving Consumption Similarities among Friends:* Kayla de la Haye, Garry Robins, Philip Mohr, Carlene Wilson: Adolescent intake of LNED foods was influenced by their friends. Findings support claims that external social and environmental cues impact junk food intake in young people.

Diabetes in India[31]*:* Jared Diamond: With the spread of fast-food outlets and more sedentary lifestyles, the prevalence of diabetes in India is rising alarmingly. But the subpopulations at risk and the symptoms of the disease differ from those in the West. One set of factors is urbanization, a rise in living standards and the spread of calorie-rich, fatty, fast foods cheaply available in cities to rich and poor alike. Another is the increased sedentariness that has resulted from the

replacement of manual labour by service jobs, and from the advent of video games, television and computers that keep people seated lethargically watching screens for hours every day.

Eat Smart, Move More: North Carolina's Plan to Prevent Overweight, Obesity and Related Chronic Diseases[32]: 2007–2012: *M*ore than half of American adults are overweight or obese. Additionally, 30 % of children ages 6-19 are overweight or at risk for overweight. In some parts of our state, the number of children who are overweight is even higher.

Fast food restaurant use among adolescents[33]*:* S A French, M Story, D Neumark-Sztainer, J A Fulkerson and P Hannan: Associations with nutrient intake, food choices and behavioral and psychosocial variables: associated with higher energy and fat intake among adolescents: Interventions to reduce reliance on fast food restaurants may need to address perceived importance of healthy eating as well as time and convenience barriers.

Eating Behaviors among Female Adolescents in Kuantan District, Pahang, and Malaysia[34]*:* Y.S. Chin and M.T. Mohd Nasir**:** The study showed that meal skipping, snacking and practicing various weight loss behaviors were some of the unhealthy eating behaviors depicted among adolescent girls.

Influences on consumption of soft drinks and fast foods in adolescents[35]*:* Denney-Wilson E[1], Crawford D, Dobbins T, Hardy L, Okely AD: The prevalence of consumption of meals from fast food outlets at least once/week was also higher among boys than girls. Over half agreed that everyone their age liked soft drink and a similar proportion agreed that soft drink was convenient to buy. Almost one quarter of boys and one fifth of girls reported that they usually drank soft drink with their meals at home.

Fast-Food Marketing and Children's Fast-Food Consumption: Exploring Parents' Influences in an Ethnically Diverse Sample[36]: Sonya A. Grier, Janell Mensinger, Shirley H. Huang, Shiriki K. Kumanyika and Nicolas Stettler: Access to fast-food restaurants was high: 93% of parents reported that they could walk, drive, or either walk or drive to a fast-food restaurant. Most children (93%) consumed fast food at least sometimes, and nearly one-third of children consumed fast food once or more times per week. Socio-cultural and Nutritional Aspects of Fast Food Consumption among Teenagers and Youth: The study concludes that adoption of fast food culture among restaurant going teenagers and youth, in a city like Allahabad, is limited to occasional outings. This holds irrespective of gender, socio-economic status and equally for vegetarians and non-vegetarians.

Fast Food Consumption in Children: Strategies to Reduce the Trend of Fast Food[37]*:* Jaya Shankar Kaushik, Manish Narang and Ankit Parakh: Fast foods have high level of fat and sugars that are not only unhealthy but addictive and that creates a vicious cycle making it hard for children to choose healthy food. High content of trans fat in commercially available fast foods predispose children to risk of future heart diseases

Increase intake of junk food in youth of Jaipur[38]*:* Jennifer L. Harris, Marlene B. Schwartz, Kelly D: Brownell. Acceptance and knowledge is there in the youth of Jaipur but there is lack of action to switch over to healthy options because perceived susceptibility is not there. One of the main reasons is government ignorance as there are no policies or rules and regulations related to junk food/unhealthy food.

Impact of Nutrition Counseling on Consumption Pattern of Junk Foods and Knowledge, Attitudes and Practices among Adolescent Girls of Working Mothers[39]*:* Priya Singla, Rajbir

Sachdeva and Anita Kochhar: The scrutiny of the data indicated that faulty food habits, more intakes of junk foods, inadequate intake of fibrous foods resulted in increased incidence of obesity.

2.3 Problem statement

Adolescence is a unique period between 10-19 years as it is a time of intense physical, psychological and cognitive development. This is a period of almost constant changes of body, mind and social relationships. During this period, when independence is established, dietary and activity pattern may be adopted that are followed for many years. Fast foods are easy to make and quick to consume. They are also referred as "JUNK FOODS" because they are zero in nutritional value and often high in fat, salt, sugar, and/or calories[40]. They have become a major problem and many countries are taking action – banning junk food advertising in children's programmes, removing it from schools and even imposing a fat tax[41]. Many fast foods also have Trans fats that behave like saturated fats when they get in the body. They clog up the human arteries and cause plaque to build up contributing to heart disease and stroke symptoms. Fast foods are high visibility products: easily available almost everywhere, extensively advertised through every media, these foods find a key target group among children. Their manufacturers and sellers also take recourse to attractive packaging and addition of food additives and colors to enhance flavor, texture, appearance and shelf life. Fast food is popular, tasty but it is unhealthy. It is low in fiber; it is high in fat, high in sugar in liquid form. Studies have shown that despite being unhealthy, fast food induces gorging that leads to non communicable diseases. Adolescents are the most important and vulnerable segment of population which has been largely ignored and badly neglected in our developmental, educational and research programmes[42].

2.4 Rationale of the study

As urbanization and industrialization speed up in Gujarat, the fast-food market, too, has expanded dramatically[43]. However, with the introduction of Western culture, the fast food and continental cuisines are also gaining popularity. This study will be carried out in Surat, Gujarat. Cultural background of Gujarat make the food habits predominantly enriched in high calories content including fats, carbohydrates and proteins leading to pre-exposure of the individuals/populations to lifestyle diseases. Fast food is a very fast growing industry in India as well as in Gujarat especially in urban areas (small and large cities). However, not much research literature is available on fast food preferences of consumers' especially young consumers in Gujarat. This article that is based on an exploratory study is an effort to fill that gap in the literature in the context of Gujarat. Since such study has not been carried out in Surat, Gujarat; so the target population is urban students of late adolescents' age group (15-19 years).

2.5 Research question

1. What are the associations between the consumption, behavior and awareness of Fast Food in late adolescent group?
2. What are the effects on the BMI and activity profile of the late adolescent group?
3. How is socio-economic status associated with consumption, behavior and awareness of Fast Food in late adolescent group of urban students?

2.6 Objectives

The study aims at focusing on behavior and awareness of fast food consumption. The objectives of the study are:

1. To determine the effect of fast food consumption upon BMI of adolescents
2. To establish relationship between the consumption and behavior of fast food with the lifestyle of urban students
3. To know the awareness level of fast food among urban students affects the behavior towards their consumption

2.7 Methodology

2.7.1 Study Design:

This was a descriptive cross sectional study.

2.7.2 Study Area:

Surat city of Gujarat.

2.7.3 Study population:

The study participants consisted of school and college going students who are studying in 10^{th} to 12^{th} standards and first and second year students in Surat city in Gujarat.

2.7.4 Sampling method:

Purposive random sampling was done within the various academic institutions to generate sample size

2.7.5 Sample Size:

350 students.

2.7.6 Study tool:

Qualitative questionnaire was used to collect data from the school and college going students of 15-19 years age group. Questionnaire consists of closed-ended items.

2.7. 7 Methods and Instruments of Data collection:

A semi- structured questionnaire was used as a data collection tools. This study was a questionnaire-based survey. A self-developed, pretested semi- structured questionnaire was used. The study population comprised school students of the Surat city. These were school and college going boys and girls, all Indian nationals. All campus students who were willing to participate in the study were enrolled. A briefing was given about the nature of study, and the procedure of completing the questionnaire was explained. Consenting participants completed the questionnaire in the class Samples of 350 students were selected randomly from 3 schools and 2 colleges of Surat city. The inclusion criterion for the selection of students was between 15-19 years of age.

2.7.8 Statistical Treatment:

The returned questionnaires were checked for completeness of data. The data obtained from the completed questionnaires were analyzed in the computer by using Statistical Package for Social Sciences (SPSS) program Version 16. Cross tabulation was used to analyze the data.

2.8 Findings and Discussion:

The total respondents (n) in the study were 350. The late adolescent age group i.e. 15-19 years were classified into two groups as shown in Table2 i.e. school going respondents of 15-17 years age group (n^1=203) and college going respondents of 18-19 years age group (n^2=147). The school going respondents were 58percent; more than college going respondents i.e. 42percent.

Table 2: Percentage Distribution of Respondents divided into two categories with respect to Age

Categories	Percentage (n= 350)
School Going students of 15-17years age group n^1=203	58%
College Going students of 18-19years age group n^2=147	42%

The study contained more male respondents i.e. 63percent as compared to female respondents i.e. 37percent shown in Table 3 and the percentage consumption of fast food items among 100percent respondents was very high; more than expected.

Table 3: Percentage distribution of respondents with respect to Gender

Gender	Percentage n= 350
Boys (220)	63%
Girls (130)	37%

Since the weight and height were asked, BMI of individual respondent was calculated by using the BMI formula. The normal weight adolescents constituted less than half the study population indicating widespread malnutrition as shown in Table4. In addition to this, there was coexistence of underweight and overweight (including obesity) among the adolescents. More than 50percent

respondents were not healthy. It is a myth that consumption of fast food only leads to gain of weight but my study shows that fast food makes people unhealthy. Since the fast food is not nutritious, hence unhealthy.

Table 4: Overall percentage distribution of weight category w.r.t. BMI of all the Respondents

Weight category w.r.t. BMI of all the Respondents	Overall percentage of 15-19 years age group (percent)
Underweight	
Severe Thickness	7.78
Moderate Thickness	13.58
Mild Thickness	4.90
Normal Weight	34.7
Overweight	28.9
Obese	
Obese- Class I	4.69
Obese- Class II	2.01

While more girls than boys were found to be underweight, also, the prevalence of overweight (including obesity), in the present study was higher in boys as compared to girls. Among males, 53percent respondents were unhealthy whereas among females, 63percent respondents were unhealthy shown in Table5.

Table 5: Gender-wise percentage distribution of weight category w.r.t. BMI of all the Respondents

Weight category w.r.t BMI among Boys and Girls	Boys (Percent) n = 220	Girls (Percent) n= 130
Underweight		
Severe Thickness	5	9
Moderate Thickness	11	19
Mild Thickness	4	7
Normal Weight	46	35
Overweight	25	26
Obese		
Obese- Class I	7	2
Obese- Class II	1	0

The study showed that 60 percent respondents whose parents gross annual salary less than 3 Lakhs were unhealthy whereas around 40percent respondents exhibited normal weight whereas 50 percent respondents whose parents‘ gross annual salary between 3-5 lakhs were unhealthy whereas only 50 percent respondents‘ exhibited normal weight. With increase in the socio-economic status, the percentages of underweight respondents are decreasing whereas the percentages of overweight and obese respondents are increasing whereas no such trend was seen with respondents with normal weight as shown in Table 6.

Table 6: Gross annual income wise percentage distribution of weight category w.r.t. BMI of all the Respondents

BMI with respect to socio-economic status of respondents	Less than 3Lakhs (percent)	Between 3-5 Lakhs (percent)	Between 5-8 Lakhs (percent)	More than 8 Lakhs (percent)
Underweight	32.88	20.65	20.37	8.63
Normal Weight	40.41	50	48.15	43.10
Overweight	19.18	20.65	22.22	34.48
Obese	3.42	3.26	5.56	12.07

69percent respondents were staying with their parents as compared to 30percent respondents stayed in hostel shown in Table 7. 57percent respondents were not eating healthy food even after staying with parents that of 68percent respondents among those, staying in hostel. This was shown in Table 8 where their BMI was calculated. Since the frequency of having fast food cooked at outside was more than half i.e. 52.2percent as compared to the fast food cooked at home i.e. 44.8percent as shown in Table 10 proved that the respondents want variations in their food on daily basis, they want taste so they opt for fast food whenever they get the chance to eat the fast food (support to Table 12 and 13). 53percent of respondents who stayed in Hostel/PG eat fast food because they wanted some change. 30.9percent of respondents preferred to eat street food and fast food offered in school or college mess/food court shown in Table

Table 7: Place of Stay of respondents

Place of stay of respondents	Percentage n = 350
With parents	66.9%
With relatives	0.6%
Hostel/PG	28.9%

Table 8: Percentage calculation of BMI of Respondents with respect to their place of stay

Weight category w.r.t. BMI	Respondents who stay with their parents (percent)	Respondents who stay in Hostel/PG (percent)
Underweight	25	35
Normal Weight	43	32
Overweight	28	32
Obese	4	10

The frequency of consumption of fast food with reference to most suitable meal, preferred place and preferred time is shown in Table 9, 10, 11, 12 and Table 13. The study showed that 15-17years age group consumed the fast food very rare i.e. 34.3percent during breakfast as shown in Table 9 because of the pressure build from school and parents whereas the college going respondents i.e. 18-19years of age group consumed the fast food everyday during breakfast due

to less observation and pressure from college and parents during the college period (support to Table 18). The frequency of consumption of fast food during in between meal snacks was 42.1percent that was more than the consumption during other meals i.e. 46.7percent.

Table 9: Frequency of consuming fast food during meals

Fast food consumed during meals	Frequency			
	Consumed everyday (percent)	Consumed twice a week (percent)	Consumed once in a week (percent)	Consumed once in two weeks (percent)
During Breakfast	26.90%	15.10%	16.90%	34.30%
In Between Meal Snacks	17.40%	42.10%	19.70%	17.70%
During Lunch	21.70%	13.70%	23.70%	28.90%
During Dinner	8.60%	17.90%	27.40%	31.10%

Frequency of consumption of fast food outside was more than fast food consumption at home as shown in Table 10. Respondents frequently preferred to eat fast food more in the fast food restaurant i.e. 25.7percent as shown in Table 11. Maximum respondents preferred to eat the fast food during evening snacks i.e. 50percent as compared to during breakfast time i.e. 25percent as shown in Table 9.

Table 10: Frequency of consuming fast food cooked differently

Type of Fast Food	Frequency of consumption of fast food				
	Consumed daily	Consumed thrice a week	Consumed twice a week	Consumed occasionally	Consumed once in a week
Fast food cooked outside	11.70%	21.70%	19.10%	13.10%	11.40%
Fast food cooked at home	15.40%	9.40%	20.00%	10.30%	13.70%
Others	2.60%	2.60%	1.40%	2.90%	34.00%

Table 11: Frequency of consuming fast food at different places

Preferred Place to consume fast food	Frequency of fast food consumption				
	Consumed daily	Consumed thrice a week	Consumed twice a week	Consumed occasionally	Consumed once in a week
School/College	38.90%	16.30%	8.60%	4.30%	4.00%
Home	14.00%	11.70%	21.40%	18.60%	11.70%
Fast food restaurant	9.40%	25.70%	16.60%	13.10%	12.00%

Respondents eat fast food more as soon as they become free from their daily routine as shown in Table 12. This analysis also supported Table 9 that respondents were more prone to eat during morning time and evening time. 53.4percent respondents eat fast food 3-4 times in a week and 31percent respondents eat 1-2 times in a week as shown in Table 13. The consumption is less during dinner shown in Table 9 and supported by Table 12.

Table 12: Percentage distribution of Respondents' w.r.t. their Best suitable time of consuming fast food

Preferred time to eat fast food	Percentage n= 350
Between 6pm to 10pm	50%
Before 11am	23%
Between 2pm to 6pm	15%
Between 11 am to 2 pm	10%
After 10pm	2%

Table 13: Percentage distribution of respondents' w.r.t. their consumption per week

Consumption per week	Percentage n= 350
1-2 times	31.0%
3-4 times	53.4%
5 times or more	12.0%

62.86percent of respondents found fast food very tasty and 21.14percent respondents found variations in the menu of the fast food as shown in Table 14. The consumption of fast food was more in schools/ college or in fast food restaurants as compared to their consumption of fast food at home as shown in Table 11.

Table 14: Percentage distribution of respondents' w.r.t. their best suitable reason for consuming fast food

Reasons of consuming fast food	Percentage n= 350
Find it very tasty	62.86%
Variety/ menu	21.14%
Limited time	8%
Home delivery	2.29%
Don‘t have any other option to eat	1.71%
Easy to find, it‘s everywhere	1.14%
Want to be like others	1.14%
Doesn‘t cost too much	0.86%
Others _____(please specify)	0.86%

Around 35percent respondents eat fast food when they wanted to have some change as shown in Table15. Around 39.72percent respondents said that consuming fast food depends on their mood. They eat either when they were happy or sad or in stress or they were angry. Around 71 % respondents wanted to go to restaurants but choice of their food was dependent on more on their taste and mood (support to Table 14 and 15).

Table 15: Percentage distribution of respondents' w.r.t. their best suitable occasion for consuming fast food

Preferred occasion to eat fast food	Percentage n= 350
When you want a change	34.29%
It doesn‘t depend on your mood	19.43%
When you‘re happy	18.86%
When you‘re in stress	12.86%
When you‘re angry	8.00%
Can‘t say	5.43%
When you‘re sad	0.57%

70percent respondents preferred to eat fast food when they went out for movies showed in this study. With increase in urbanization, development of malls and theatres; large numbers of fast food chains are opened in malls and theatres to attract people to consume more of fast food. 44.6percent respondents preferred variations/menu in their fast food as shown in Table 14. They ordered different items time to time. 50.57percent preferred carbonated soda/diet soda along with their fast food meal or snack shown in Table 16. The essence or flavour added products were

being consumed more than natural beverages or water. The combo meal including snack and beverage attracts the customer more and are in trend in fast food chains.

Table 16: Preference of beverage

Preference of Beverage	Percentage n= 350
Carbonated soda/ diet soda	50.57%
Lemonade	35.71%
Fruity juice	32.86%
Bottled Milk and Shake	30.29%
Energy drinks	24.57%
Mineral Water	23.14%
Others (milk or tea)	13.14%
No drink	9.14%

65.71 percent of respondents preferred to accompany with their friends to eat fast food. The school going students preferred to eat fast food both with parents and friends i.e. 50percent and 43percent respectively as shown in Table 17. The college going respondents preferred to accompany with friends. This study showed that 74percent respondents chose friends and among them around 50percent of college-going respondents stayed in hostel so it supported the fact that they take their friends or partner along with them.

Table 17: Percentage distribution of respondents' w.r.t. their preference of partner to eat fast food

Most preferred person to go out to eat fast food	Overall percentage n= 350	Percentage of School Going Students n^1= 203	Percentage of College Going Students n^2= 147
Friend/ Partner	65.71	43	74
Parents/Family	22.57	50	12
Siblings	3.71	3	5
Alone	8	4	9

Parents of near to half of the respondents i.e. 43.1% had no objection to their consumption as shown in Table 18. Around 15percent parents were not aware of their frequency of consuming fast food. Parents of school going respondents showed objection on the consumption habits i.e. 42.99percent as compared to the parents of college going respondents didn't have objection on the consumption frequency i.e. 45.31percent. This behavior supported the frequency of consumption of respondents in Table 10, 11 and Table 8 is justified that showed the percentages of overweight and obese respondents are more among hostel residents.

Table 18: Parents reaction towards the consumption

Parents objection to fast food	Percentage n=350	Among School Going students n^1=203	Among College Going Students n^2=147
Yes, they object	35.10	42.99	23.44
No objection	43.10	31.31	45.31
Parents are not aware	6	18.69	28.13
Can't say about their views	14.90	7.01	3.13

Table 19 showed that 40percent respondents spent approximate 100-500Rs from their pocket to consume the fast food in one week. Even after belonging to a middle income class family, the expenditure on fast food was very high. Table 18 supported this analysis that when respondents hang around with their friends, they used to spend more. Company of friends was the primary cause of initiation of consuming fast food in school/college/restaurants shown in Table 17.

Table 19: Percentage distribution of respondents' w.r.t. their expenditure per week

Expenditure per week	Percentage n=350
Less than 100rs	34.57%
Between 100-500rs	38.86%
More than 500rs	17.14%
Don't know	6.86%

Around half of respondents agreed that brand name of fast food affect their choice i.e. 48.3percent as shown in Table 20. Respondents were attracted to fast food in such a manner that price of fast food didn't matter much to them i.e. more than 50percent respondents eat street food, fast food in food courts and other places with no issues of their prices. The objection of parents, the middle income salary of parents, thus having middle socio-economic status didn't matter to the fast food lover consumer. Their frequency of consumption is seen above in Table 9, 10, 11, 12 and Table 13. They spent and eat according to their taste and mood but irrespective of the price as shown in Table 14 and 15.

Table 20: percentage effect of brand name and price of fast food on consumer's choice

Behavior of respondents	Yes, choice is affected	No, it is not affected
Effect of brand name on choice of fast food	48.30%	39.70%
Effect of price on choice fast food	21.00%	57.40%

Frequency of watching advertisements of fast food was quite common. Around 40percent respondents saw fast food advertisements very often shown in Table 22. More than half of half of the advertisements were covered under television and newspapers i.e. 60.57percent and 59.71percent respectively shown in Table 21. These advertisements were shown everywhere and almost at all places, respondents were attracted towards new snacks and they go to restaurants to consume them supported by Table 13 and Table 20. Thus it was proved that due to effect of advertisements, people were more attracted to fast food.

Table 21: Site of Advertisements

Site of advertisements	Percentage n=350
On Television/ Radio	60.57%
In the newspaper	59.71%
On the Internet	58.86%
On the public billboards	38.86%
In the magazines	36.57%
At the school/college	36.29%
In public places	27.71%

Table 22: Frequency of advertisements Seen by respondents

Frequency of watching advertisements	Percentage n= 350
Very often	38.29%
Quite often	26.29%
From time to time	21.43%
Rarely	11.43%

66percent respondents said that they feel that they want to taste the snack, which had been advertised shown in Table 23. Becoming unhealthy, gain of weight was due to overeating even if not hungry and 13.14percent of respondents wanted to eat fast food even if not hungry. Since

they needed variety in their meal and advertisements bring more variety of meal/snack shown in Table 14. More advertisements and marketing of the product lead to more consumption shown in Table 21 and supported in Table 23. 44.6percent respondents said that they want to eat fast food snack whenever they see advertisement, even if not hungry.

Table 23: Influence of advertisements

Influence of advertisements	Percentage n=350
Want to taste it	66%
Doesn‘t have any effect on you	6.57%
Want to eat it even if not hungry	13.14%
Ask your parents to buy it	7.14%
Save money to buy it	6%
Others _____(please specify)	-

The school and college going students had sitting work more than physical work. They had least or zero time for performing physical activity i.e. 54.57percent in their daily routine shown in Table 24. They had zero physical activity during studying, watching television, surfing internet and maximum consumption of fast food during this time at home or tuitions was observed; supported by Table 11. Less physical activity corresponded to more gain in weight i.e. overweight and obesity. 36% respondents have BMI above 25 shown in Table 4. The sleeping schedule was also not good and satisfactory in case of respondents also shown in Table 24. Fast food plays refreshment role during study pressure on the respondents in that age supported by Table 15. 24.29percent respondents sleep only for 2-4hours. Students study during night and along with it, they add some fast food snack to their diet. Late night eating and less sleep will leads to various health problems in their body in later stage. Students preferred to eat the most during school/college hours i.e. 22percent and when they were sitting in front of internet i.e.

28.86%. The scenario showed that whenever people get time and they have mood to consume, they consumed fast food (supports to Table 12 and Table 13).

Table 24: Activity Profile of respondents

Activity Profile of respondents	Frequency			
	0-2 hours	2-4 hours	4-6 hours	More than 6 hours
Physical Activity	54.57%	34.29%	8.57%	1.71%
Television	52.86%	32.57%	6.00%	3.43%
Internet	35.43%	8.86%	25.71%	28.57%
Hanging out with friends	32.86%	17.14%	36.29%	11.43%
Sleeping	8%	24.29%	17.71%	49.43%
Sitting and Studying	6.57%	30%	13.71%	44%
Others _____ (please specify)	16.14%	20.30%	1.02%	2.54%

32.9 percent respondents eat fast food according to their mood and taste and time shown in Table14. Nutritional information given behind most of the fast food snacks didn‘t affect their choice much. 57.4percent respondents were aware of the effects of fast food. Around 60percent respondents said that they check the nutritional information also but still their consumption was not affected much shown in Table 25. Table 10 confirmed their routine consumption and Table13 also confirmed their frequency of consumption per week.

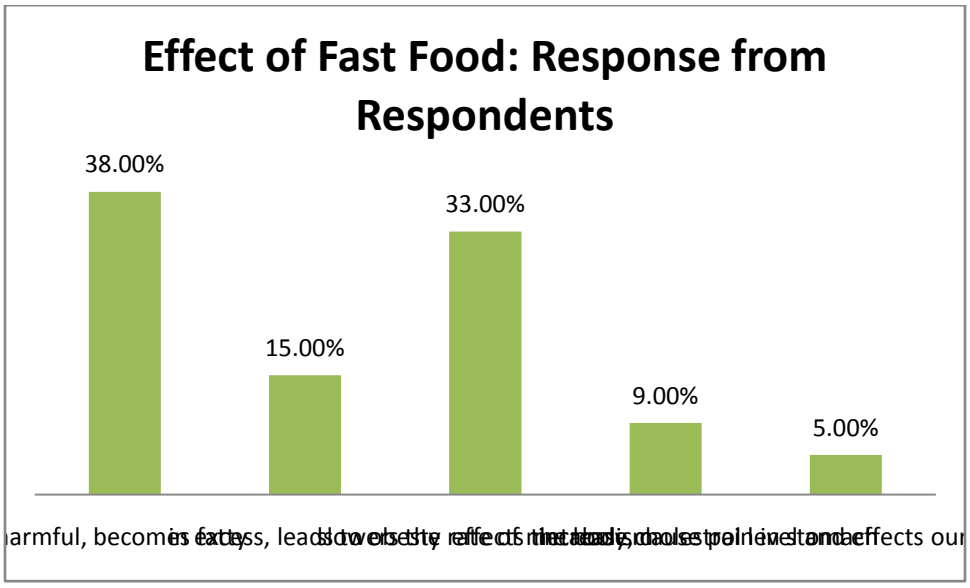
Table 25: Percentage affect of nutritional information during consumption of fast food

Affect of Nutritional information of fast food on fast food choice	Yes, it affects	No, it doesn‘t
	20.30%	42.90%

38percent respondents said that fast food is harmful and it makes person fatty. 33 percent respondents said that fast food slower the rate of metabolism of the body. Even after knowing the

harmful effects, the consumption was more and their behavior confirmed that they are more prone to fast food shown in graph 3.

Graph 1: Percentage of Responses of effect of fast food



51.43percent respondents said that health problems were majorly caused due to lack of physical activity shown in Table 26. The activity profile in Table 24 also confirmed that the physical activity was very less among them. Nearly half of the adolescents correctly perceived their own faulty behaviors pertaining to healthy weight, physical activity as well as excessive time spent in front of the TV/computer shown in Table 24 about their sedentary lifestyle. According to 37.14 percent and 44.57percent respectively shown in Table 26, the frequent consumption of fast food meals and beverages cause health problems.

Table 26: Percentage of respondents who were aware of factors that causes health problems

Factors that can cause health problems due to consumption of fast food	Percentage n=350
Frequent consumption of soft drinks and sweetened drinks	37.14%
Frequent consumption of fast food meals	44.57%
Lack of physical activity	51.43%
The influence of marketing of fast food (e.g., advertizing, packaging, low prices, etc.)	34.00%
You don‘t know	5.43%

40percent respondents favoured that healthy food product should be offered in markets and their advertisements should be more than that of fast food shown in Table 27. 34.29percent respondents favoured that seminars and education should be given in schools educating the students about harmful effects of fast food.

Table 27: Opinion of respondents about the activities reducing the consumption

Activities that can reduce consumption of fast food	Percentage n=350
Offer better healthy food products in markets	40.00%
Seminars and education to be given in schools educating them about fast food	34.29%
Show all the ingredients in fast food products more clearly	8.29%
Ban the sale of energy drinks to those under 18 years old	7.14%
Make attractive packaging for healthy foods	4.29%
Tax soft drinks and fast foods	3.14%
Prohibit all advertising and marketing of fast food through campaigns	2.00%

The study indicated that respondents often get bored from food made at home or offered in mess, so to get some change, and for new taste they eat fast food outside proved in Table 14 and 15. Since students were aware of harmful effects of fast food, proper awareness about the fast food, support of school principals and staff, fast food can be banned or strict actions could be taken against this heavy consumption. Although the fast food that was rich in fats, calories and less in

nutrients yet people were not well aware whether the snack if fast food or not shown in annexure4. Even if they are aware, their consumption was still very high shown above. Lack of knowledge and awareness of nutritional needs and importance of healthy behaviors in adolescents was seen, who influence and guide their behaviors. Poor nutritional status and unhealthy behaviors of adolescents under this study seemed to be the result of combination of inadequate nutrition and health policies at administrative level, lack of proper knowledge and incorrect perceptions of teachers about it and easy access of unhealthy fast food to adolescents.

2.10 Conclusion

Fast food is growing component in diet, and the frequency of fast food use has increased dramatically since the early 1970s. Fast food is especially popular among adolescents, who on an average visit a fast food outlet thrice per week. Several factors have contributed to this phenomenal increase in the use of fast food, including a greater number of working women, dual-career families, more diverse schedule of family members, an aging population and an increasing number of one and two person households. Fast foods meet the needs of many people because they are quick, reasonably priced and readily available. Also currently these restaurants are responding to the health concerns of their customers by changing some of their practices, such as the continued trend towards the use of vegetable oils instead of animal fats for frying, an increase in the number of low-fat menu items, and more fruits and vegetables available at salad bars. In this study, the prevalence of overweight and underweight is more than normal weight and obese. This shows that majority of the adolescents are not taking proper dietary intake. Adolescents who eat fast food consume more calories, fat, sugar, and sugar-sweetened beverages – and less fiber, milk, fruit, and vegetables – than peers who do not. If they ate fast food only

occasionally, this would not be problematic. But almost every day, consumption among adolescents is harmful. Soft drink and fast food are energy dense foodstuffs that are heavily marketed to adolescents, and are likely to be important in terms of risk of obesity. This study shows that there are three major factors behind the probable chances of health diseases caused in later stages among adolescents due to heavy consumption of fast food:

Insufficient physical activity: Regular physical activity reduces the risk of cardiovascular disease including high blood pressure, diabetes, breast and colon cancer, and depression. Insufficient physical activity is highest in high-income countries, but very high levels are now also seen in some middle-income countries especially among adolescents.

Unhealthy diet: Adequate consumption of fruit and vegetables reduces the risk for cardiovascular diseases, stomach cancer and colorectal cancer. High consumption of saturated fats and trans-fatty acids is linked to heart disease. Unhealthy diet is rising quickly in lower-resource settings.

Overweight and obesity: Risks of heart disease, strokes and diabetes increase steadily with increasing body mass index (BMI). Raised BMI also increases the risk of certain cancers. The prevalence of overweight is highest in upper-middle-income countries but very high levels are also reported from some lower-middle income countries. The highest prevalence of overweight among infants and young children is in upper-middle-income populations, while the fastest rise in overweight is in the lower-middle-income group.

In Indian context, there is high concern towards health in twenty-first century. There are health related articles in daily newspapers, and health shows on television. There are special health related magazines that are now very popular. Health related articles do mention to consume more fruits, vegetables, water and to consume less or nil of fast food being high on fat and calories.

Restaurants have an important role to play in creating a food marketing environment that supports, rather than undermines, the efforts of parents and other caregivers to encourage healthy eating among children and prevent obesity. Eating fast food harms young people‘s health. Fast food restaurants extensively market to young people. They must consume less of the calorie-dense, nutrient-poor foods served at fast food restaurants. Parents and schools can do more to teach them how to make healthy choices. Above all, fast food restaurants must drastically change their current marketing practices so that these adolescents do not receive continuous encouragement to seek out food that will severely damage their health. In addition, when the adolescents visit, the restaurants should do more to encourage the purchase of more healthful options. These restaurants must establish meaningful standards for adolescent-targeted marketing that apply to all fast food restaurants. They must do more to develop and promote lower-calorie and more nutritious menu items. They must do more to push their lower-calorie and more nutritious menu items inside the restaurants when young people and parents make their final purchase decisions.

Interventions to reduce consumption of soft drinks should target availability in both the home and school environment by removing soft drinks and replacing them with more nutritive beverages. Fast food outlets should be encouraged to provide a greater range of healthy and competitively priced options in reasonable portions. These calls for sensitizing teachers towards health and nutritional needs of children and validate capacity building of teachers towards nutritional aspects before initiating a school program. Thus, with appropriate care, schools can be used to create an enabling environment for inculcating healthy behaviors in adolescents during impressionable age. Multiple strategies are needed to curb the epidemic of obesity among adolescents and this study furthers the understanding of the influences of consumption of energy

dense, nutrient poor foods. Understanding the influences over consumption may assist in developing interventions to replace soft drink and fast food with more nutritious food and drinks. Educational campaign regarding healthier food choices, lifestyle, and weight management could make a positive impact on the health of these adolescents. Changing the food environment to limit the availability of soft drink in the home and at school, and increasing the cost of nutrient poor foods relative to nutrient rich food items would seem useful strategies. Awareness among adolescents in schools, colleges on topic of non communicable diseases, health implications of under nutrition, obesity and diabetes among adolescents, importance of increased physical activity and reduced TV viewing, importance of weight reduction, importance of following a traditional diet pattern and healthy eating, understanding the fast food culture and how to reduce consumption of fast foods, increasing fruits and vegetables consumption, need for cutting down on calorie, fat and sugar intake wherever appropriate, ill-effects of smoking, use of smokeless tobacco, alcohol etc., spotting the hidden messages in junk food advertisements, and the need to understand food labeling.

Similarly, policies to restrict the expansion of fast food outlets and encouraging outlets to provide healthy options at competitive prices that are targeted. Adolescence, being the last window of opportunity to achieve optimum height and weight, is the best time to carry out nutrition health intervention. The best way to improve health and wellbeing of children is to introduce strong school nutrition health policies and programs addressing the underlying causes of malnutrition – all of which are modifiable lifestyle factors.

2.11 Ethical Consideration

1. Informed consent was taken from the subjects.

2. Confidentiality of the subjects was maintained.
3. Names and personal information was not taken.

2.12 Limitations of the Study

1. The self-administered questionnaire was used, so there was a possibility of reporting false information. However, every effort was made to motivate respondents to provide true information.

2. This study is done in just 3 schools and 2 colleges of a Surat city so it might not represent the situation of adolescent students of the entire city or the country as a whole.

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Annexure

Annexure1: Questionnaire

S.NO.						

Basic Information					
Q1: Place:					
Q2: Age:			Q3: Gender:	Male	Female
Q4: Weight: ___ (in Kg)			Q5: Height: __ (in ft)		
Q6: Where do you stay?	With parents	With relatives	Hostel/PG	Others _____ (please specify)	
Q7: What is the working status of your parents?	Father working		Mother working	Both working	
Q8: What is your gross annual family income?			1) Less than 3 Lakhs 2) Between 3-5 Lakhs 3) Approximate 5-8 lakhs 4) More than 8 lakhs		
Main Questionnaire					
Q9: Have you heard about fast food?	Yes		No	End the questionnaire	
(if yes, please tick the various types of fast food you eat the most) (You may check one or more options)					

Chips	Burger	Noodles	Manchurian	Patty	Nachos
Pav bhaji	Tacos	Chocolate / candy	Sandwich	Pizza/ Garlic bread	Energy Drinks
Momos	Ice-creams	French fries	Canned food	Pakoras	Pasta
Fried Indian food (chole bhature)	Rolls (kathi or cream rolls)	Cake/ Doughnuts/ Pastry/ Muffins	Carbonated cold drinks	Kachori	Pop-corns
Corn-puffs	Samosa	Choupsy	Tikki	Bottled Drinks (flavored shakes)	Khaman
Khamni	Locha	Fafda	Khakra	Puranpoli	Idada

Khandvi	Ganthia	Muthia	Hahdwoh	Khichu	Dabeli
Vada-Pav	Others (please specify)				

Q10: Which meals best describe your fast food consumption? (please tick)	Breakfast	Lunch	Dinner	In Between Meal Snacks
Everyday				
Sometimes (Twice a week)				
Rare (Once in a week)				
Very rare (Once in two weeks)				

Q11: Which type of fast food you prefer to eat? (please tick)	Cooked at home	Cooked outside	Others _____ (please specify)
Always (Daily)			
Frequently (Thrice a week)			
Sometimes (Twice a week)			
Occasionally			
Rarely (Once in a week)			

Q12: Where do you prefer to eat the fast food?	At Home	In school/ College	In the fast food restaurant	Others____ (please specify)
Always (Daily)				
Frequently (Thrice a week)				
Sometimes (Twice a week)				
Occasionally				
Rarely (Once a week)				

Q13: What time of day do you eat fast food?	Before 11am Between 11 am to 2 pm Between 2pm to 6pm Between 6pm to 10pm After 10pm

Q14: How often in a week do you eat the fast food?	0 time	1-2 times	3-4 times	5 times or more

Q15: Why do you eat fast food?	Find it very tasty Doesn‘t cost too much Don‘t have any other option to eat Limited time Variety/ menu Easy to find, it‘s everywhere Want to be like others Home delivery Others _____(please specify)
Q16: When do you most prefer to eat fast food?	When you‘re happy When you‘re in stress When you‘re sad When you‘re angry It doesn‘t depend on your mood When you want a change Can‘t say

Q17: If you go out then which fast food restaurant do you prefer to visit?	McDonald KFC Pizza hut Dominos A&W Subways Burger King Others _____(please specify)	
Q18: Do you intend to eat fast food when you go out to watch movies?	Yes	No
Q19: Whom do you prefer to go with you when you eat the fast food?	Parents/Family Siblings Friend/ Partner Alone Others ____(please specify)	

Q20: How much do you spend in one week on fast food?	Less than 100rs	Between 100-500rs	More than 500rs	Don‘t know
Q21: Do your parents have any objection to your	Yes	No	They are not aware	Can‘t say

eating fast food?				

Q22: Do you usually order the same items?	Yes, always Yes, Most of the time No, Sometimes No, rare

Q23: What beverage do you usually order with fast food meal or snack?
(You may check one or more options)

No drink	Mineral Water	Carbonated soda/ diet soda	Energy drinks
Fruity juice	Bottled Milk and Shake	Lemonade	Others _____ (please specify)

Q24: How did you get initiated into eating fast food?	Advertisements Family Friends School/College Others _____ (please specify)

Q25: Does brand name of fast food affect your choice?	Yes, always	Sometimes	Not at all
Q26: Does fast food price affect your choice?	Yes, always	Sometimes	Not at all

Q27: In your daily life, you see fast food advertized?	Very often Quite often From time to time Rarely

Q28: In your daily life, where do you see fast food advertized?
(You may check one or more options)

On Television/ Radio	On the Internet	On the public billboards	In the magazines
At the school/ college	In the newspaper	In public places	Others _____ (please specify)

Q29: When you see fast food advertized, what do you feel?	Want to taste it Doesn‘t have any effect on you Want to eat it even if not hungry Ask your parents to buy it Save money to buy it Others _____(please specify)

Q30: Do you think that fast food advertizing leads you to eat more of it?	Yes	No	Can‘t say

Q31: How much time you spend in the following activities?	0-2 hours	2-4 hours	4-6 hours	More than 6 hours
Sitting and Studying				
Television				
Physical Activity				
Internet				
Sleeping				
Hanging out with friends				
Others _____ (please specify)				

Q32: When do you consume the fast food the most? (please rate 1-8)	
During school/college hours	
After school/college hours	
During tuition hours	
After tuition hours	
While watching television	
Hanging out with friends	
While sitting in front of the internet	
Others _____ (please specify)	

Q33: Does nutritional information of fast food influence your choice?		
Not at all	Sometimes	Rarely
Most of the time	Always	
Q34: In your opinion, is there any effect of fast food?	Yes	No
If Yes, please mention		

Q35: Are you aware of the health conditions that associated with the consumption of fast food?	Yes	No Skip Q36 & Q37
Q36: In your opinion, which of the following factors can cause health problems? (You may check one or more options)	Frequent consumption of soft drinks and sweetened drinks Frequent consumption of fast food meals Lack of physical activity The influence of marketing of fast food (e.g., advertizing, packaging, low prices, etc.) You don‘t know	

Q37: In your opinion, what activities could reduce consumption of fast food?	Show all the ingredients in fast food products more clearly Ban the sale of energy drinks to those under 18 years old Offer better healthy food products in markets Prohibit all advertising and marketing of fast food through campaigns Seminars and education to be given in schools educating them about fast food Make attractive packaging for healthy foods Tax soft drinks and fast foods Others _____(please specify)
Q38: Do you think fast food should be banned in schools?	Yes No Can‘t say
Q39: Would you like to change your habit of fast food consumption in the next few months? (You may check one or more options)	Yes, I would like to eat less often Yes, I would like to eat in smaller quantities No, I am happy with my consumption I do not eat fast food I haven‘t thought about it

S.No.	Food Items	Q40: Is this a junk food in your opinion? Y or N
1.	Chips	
2.	Burger	
3.	Noodles	
4.	Chole bhature	
5.	Parantha	
6.	Manchurian	
7.	Gol gappe	
8.	Chaat papdi	
9.	French fries	
10.	Momos	
11.	Kathi roll	
12.	Cream roll	
13.	Canned food	
14.	Patty	
15.	Samosa	
16.	Tikki	
17.	Pav bhaji	
18.	Sandwich	

19.	Pasta	
20.	Pizza	
21.	Garlic bread	
22.	Chocolates /Candy	
23.	Corn –puffs	
24.	Choupsy	
25.	Soups (cream tomato, monchow and sweet corn)	
26.	Pop-corns	
27.	Tacos	
28.	Cake	
29.	Muffins/ Pastries/ Doughnuts	
30.	Nachos	
31.	Pakora	
32.	Kachori	
33.	Ice-creams	
34.	Bottled milk and shakes	
35.	Energy drinks	
36.	Carbonated cold drinks	
37.	Cheese Chilly	
38.	Tandoori Food	
39.	Naan/ kulcha	
40.	Dosa	
41.	Meat	
42.	Biryani	
43.	Idli	
44.	Kebab	
45.	Fried rice	
46.	Date pancakes	
47.	Bhelpuri	
48.	Bikaneri bhujia	
49.	Dhokla	
50.	Dahi puri	
51.	Poori	
52.	Khaman	
53.	Khamni	
54.	Fafda	
55.	Khakra	
56.	Idada	
57.	Ganthia	
58.	Daal Dhokli	
59.	Muthia	
60.	Others _____ (please specify)	

Any comments or suggestions

Annexure 2: Ethical Consent Form

This is for the information of the respondents that I _Sugandha Gupta' am associated with Institute of Health Management Research, Jaipur and currently working in Surat Municipal Corporation, is conducting a research study on –Study of Consumption, Behavior and Awareness of Fast Food among urban students of late adolescent age group with reference to BMI, Activity Profile and Socio-economic status". I am providing to you a self administered Questionnaire that you are requested to fill. I request you to be open about your views while participating in the discussion. Whatever information you provide will be kept strictly confidential and will be used for research purpose only. I would very much appreciate your participation in this study. The survey usually takes about 15-20 minutes to complete. Participation in this survey is voluntary. However, I hope that you will participate in this survey since your participation is important. I am looking forward towards your participation and cooperation.

At this time, do you want to ask me anything about the survey?

Consent Form

I have been given some general information about this project and the types of questions I can expect to answer.

I understand that my participation in this project is completely voluntary and that I am free to decline to participate, without consequence, at any time prior to or at any point during the activity.

I understand that any information I provide will be kept confidential, used only for the purposes of completing this assignment, and will not be used in any way that can identify me. All questionnaire responses and records will be kept in a secured environment.

I understand that the results of this activity will be used exclusively in the above-named research assignment. I also understand that there are no risks involved in participating in this activity.

I have read the information above. By signing below and returning this form, I am willing to participate in this study by registering my responses on the given questionnaire.

SIGNATURE……..

DATE …….

Annexure 3: Consumption of fast food items mostly preferred by the respondents

Serial No.	Fast Food Items	Percentage of consuming Fast food
A	chips	77percent
B	burger	80percent
C	noodles	80percent
D	Manchurian	56percent
E	patty	61percent
F	nachos	61percent
G	pav bhaji	57percent
H	tacos	13percent
I	chocolate/candy	72percent
J	sandwich	66percent
K	Pizza/ garlic bread	68percent

L	energy drinks	56percent
M	momos	45percent
N	ice creams	80percent
O	French fries	47percent
P	canned food	14percent
Q	pakoras	48percent
R	pasta	55percent
S	fried Indian food (chole bahutre)	54percent
T	rolls (kathi or cream rolls)	43percent
U	cake/ doughnuts/ pastry/ muffins	60percent
V	carbonated cold drinks	49percent
W	kachori	35percent
X	pop-corns	45percent
Y	corn- puffs	18percent
Z	samosa	61percent
Aa	choupsy	9percent
Bb	tikki	45percent
Cc	bottled drinks (flavored shakes)	35percent
Dd	Khaman	99percent
Ee	Khamni	97percent
Ff	Locha	93percent
Gg	Fafda	86percent
Hh	Khakra	85percent
Ii	Puranpoli	77percent
Jj	Idada	80percent
Kk	Khandvi	80percent
Ll	Ganthia	56percent
Mm	Muthia	61percent
Nn	Hahdwoh	61percent
Oo	Khichu	57percent
Pp	Dabeli	96percent
Qq	Vada-Pav	86percent
Rr	Others….please specify	10percent

Annexure 4: Awareness among the mostly consumed items, whether fast food or not.

S.No.	Food Items	Percentage of respondents answering that item is a fast food item
1.	Chips	78%
2.	Burger	94%
3.	Noodles	91%
4.	Chole bhature	59%
5.	Parantha	33%
6.	Manchurian	69%
7.	Gol gappe	48%
8.	Chaat papdi	54%
9.	French fries	80%
10.	Momos	71%
11.	Kathi roll	56%
12.	Cream roll	45%
13.	Canned food	65%
14.	Patty	70%
15.	Samosa	78%
16.	Tikki	71%
17.	Pav bhaji	59%
18.	Sandwich	54%
19.	Pasta	64%
20.	Pizza	71%
21.	Garlic bread	55%
22.	Chocolates /Candy	47%
23.	Corn –puffs	49%
24.	Choupsy	57%
25.	Soups (cream tomato, monchow and sweet corn)	10%
26.	Pop-corns	13%
27.	Tacos	20%
28.	Cake	79%
29.	Muffins/ Pastries/ Doughnuts	53%
30.	Nachos	53%
31.	Pakora	60%
32.	Kachori	68%
33.	Ice-creams	44%
34.	Bottled milk and shakes	37%
35.	Energy drinks	50%
36.	Carbonated cold drinks	71%
37.	Cheese Chilly	65%
38.	Tandoori Food	45%
39.	Naan/ kulcha	41%
40.	Dosa	15%
41.	Meat	54%

42.	Biryani	12%
43.	Idli	8%
44.	Kebab	46%
45.	Fried rice	63%
46.	Date pancakes	66%
47.	Bhelpuri	69%
48.	Bikaneri bhujia	56%
49.	Dhokla	56%
50.	Dahi puri	66%
51.	Poori	59%
52.	Khaman	69%
53.	Khamni	19%
54.	Fafda	53%
55.	Khakra	79%
56.	Idada	71%
57.	Ganthia	56%
58.	Daal Dhokli	16%
59.	Dabeli	78%
60.	Vada Pav	94%
61.	Others _____ (please specify)	