Review Article

Fast Food Consumption and its Impact on Health

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Abstract:
Food is known to play an important role in both the development and prevention of many diseases. The habit of taking food also varies from society to society. Globalization and urbanization have greatly affected ones eating habits and forced many people to consume fancy and high calorie fast foods, popularly known as 'Junk food'. Fast food is an important item of the food as it is readymade in nature and easy to eat. Food eaten outside the home is now becoming a significant and regular component of life. These rapid changes in the levels and composition of dietary and activity/inactivity patterns in transitional societies are related to a number of socioeconomic and demographic changes. Numerous studies have concluded that the poor nutritional value, the excessive salt content and the degree of saturated fats and trans fatty acid associated with fast food products likely perpetuate the prevalence of hypercholesterolemia, hypertension, type II diabetes mellitus, obesity and cardiovascular disease in Westernized societies. The present review describes the association between the consumption of such foods and health outcomes.

Keywords: Fast food, Lifestyle, Health and diseases

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Introduction:
Food is important for survival[1]. It provides necessary nutrition for the body of the human being[1]. Fast food, which is available readymade and easy to eat is now a days an important item of food[1]. It often termed as food away from home (FAFH)[1].

The term 'Fast food' was introduced by Merriam-Webster in 1951[2]. According to Merriam-Webster, fast food is the term given to food that can be prepared and served very quickly[2]. Typically it means any food that sold in a restaurant with low preparation time and can be given to the customer for take away[2]. So, it mainly designed for its quick availability[2]. These are specialized products such as hamburgers, pizzas, fried chicken or sandwitches[1,3].

It can be categorized as Junk Food (JF)[4]. According to National Institute of Nutrition (NIN), JF are classified as food products which are high in salt, sugar, fats and energy (calories) and contain little or no proteins, vitamins or minerals[4,5]. Most JFs are regarded as fast foods as they are prepared and served fast but not all[6]. It can be termed as follows also: EDLNF or EDNPFC: Energy dense low-nutrient density foods or energy dense and nutrient poor foods for children, FMNV: Foods of minimal nutritional value, HFSS foods: Foods that is high in fat, salt and sugar[5].

Fast Food Consumption in the World:
Fast food was first popularized in 1950s in the United States[7]. The first fast food restaurants were established in the United States with White Castle in 1916[8]. Now a days McDonald's, KFC and Pizza Hut are multinational corporations with outlets across the globe[9].

At present fast food restaurants are one of the largest segments of the food industry with over 200,000 restaurants and $120 billion in sales in the U.S. alone[10]. International chains including McDonald's and Yum! Brands have 65 percent and 50 percent of their sales overseas respectively which indicates that fast food has a great demand all over the world[11].

Multiple studies have shown that increased frequency of takeaway and fast food consumption is worldwide, especially in Europe, the United States, and Australia[12–18]. The expenditure on fast foods is more than their expenditure on higher education, personal computers, software or new cars among Americans[19].

A governmental report in the United Kingdom revealed that about 22% of residents were found to purchase foods from takeaway outlets at least once a week and 58% a few times a month[14]. Approximately 28% of Australians consuming

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takeaway meals at least twice a week and 37% of US residents eating fast food at least once over two nonconsecutive days[15,16]. The National Restaurant Association estimates that the average American eats out an average of four times a week[20].

In Turkey, it was revealed in a study that about one-third of the research participants chose fast food as snack for once or more times daily[21].

About 33 percent of children and adolescents in the United States consume fast food a day and intake increase with age[22,23]. In the United States, $8 billion is spent on food and beverages by children between the ages of 4 and 12 years[24].

Fast food is particularly popular among adolescents, with a report from 2001 indicating that 75% of US teenagers between the ages of 11 and 18 years eat at fast-food outlets at least once a week and a 2010 report indicating that 70% of Brazilian students (9-18 years old) consume fast food four times or more per week[17,18].

Fast Food Consumption in Asia:
According to Naido et al., in 2014, 96.6% of the 1.53 million fast-food (FF) outlets in China, 94.7% of the 87,186 outlets in India and 68.6% of 8152 outlets in Vietnam was available[25]. American FF restaurants expanded rapidly in China over the last decade[26].

The modern fast-food industry in China started in Beijing in 1987[26]. The fast food industry had estimated revenues of $94.2 billion in 2013 which was 20.0% of the total revenue in China[26]. According to a recent report, over two million fast food restaurants operated in China in 2013, including franchise and chain operators of all sizes and independent Chinese-style fast food facilities[27].

In Singaporean it was observed that 70.8% of adults aged 18–21 years consumed Western fast-foods on a weekly basis compared to 3.0% of adult aged 60 years and over[28].

Fast Food Industry in Bangladesh:
Fast food culture was started in the early nineties in Bangladesh[1]. The first fast food shop started its business in the Bailey road of Dhaka[1]. Swiss, Helvetia etc. are name of some Bangladeshi fast food shops formed in franchising system[1]. In early 2000, Bangladesh experienced the entry of the first international brand of fast food franchise in the country[1]. Pizza Hut and KFC entered into Bangladeshi market having franchise with Transcom Foods Limited (TFL)[1].

Reason behind Preference for Fast Food:
Fast food companies are targeting young children with great promotion strategies, delicious recipes and attractive advertisement[29]. The important factors for giving preference of fast food include good taste, easy accessibility, increased convenience and its pocket friendly nature[29,30].

Students usually prefer this kind of foods to save both time and money[31-34]. Socioeconomic trends, such as prolong work hours, more women employed outside the home and a high number of single-parent households have changed the way families obtain their meals[13,35-37].

Reason for the choice to dine out include insufficient time to cook at home, opportunities to socialize or conduct business, convenience or the need for a quick meal, enjoyment and family outings or celebrations (birthdays, anniversaries and other special occasions)[1].

Changing of lifestyle and loss of the family tradition of eating together may be the reason of increasing the popularity of fast foods among young people[31,34,38]. Singh et al. revealed in their research that Indian young consumers visit fast food places for enjoyment but home food was their first preference[39].

Fast Food Items:
Examples of most prominent fast food items include burger, pizza, fried chicken, hamburger and sandwich[1]. Gupta et al. found that the most popular junk food item was chips (71%) followed by chocolate (14%), bakery products (13%), soft drinks (7%), and sugar-sweetened beverages (5%) in their study[6].

A study conducted in Baroda reported higher consumption of junk food items (56%) such as chocolates, pastries and sweets and soft drinks (39%) by school age children[40]. Another study conducted in Lucknow reported daily consumption of junk food items such as chocolate, bakery items, and ice cream by 28%, 14%, and 35% among school age children, respectively[41].

Fast Food Consumption & its Relation with Age:
In Singaporean children and teens, it was observed that 70.8% of adults aged 18–21 years consumed Western fast-foods on a weekly basis compared to 3.0% of adult aged 60 years and over[28].

High consumption of these foods in the younger age demographic has also been observed in studies from US, Europe and South Korea [12,42-45].

Seventy Five Percent of US teenagers between the ages of 11 and 18 years eat at fast-food outlets at least once a week[17]. 70% of Brazilian students (9–18 years old) consume fast food four times or more per week[18].

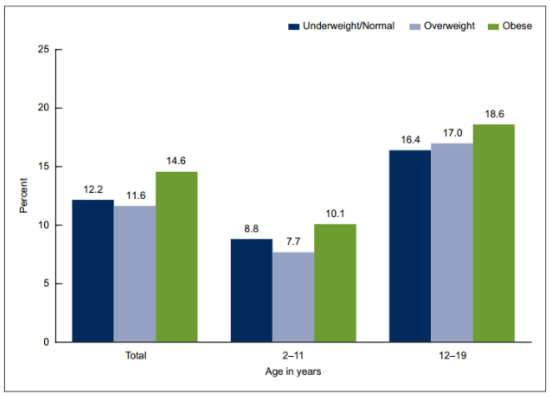

Figure-1: Mean percentage of calories from fast food among children and adolescents aged 2-19 years, by weight status and age: United States, 2011-2012

Fast Food Consumption & its Relation with Gender:

A Swedish study reported that female students led a healthier lifestyle than male students which was similar to the findings by Bipasha et al[46]. In their study Ansari et al found, men had reported frequent consumption of snacks than women[38]. Similar findings were also found among the University students of France[47].

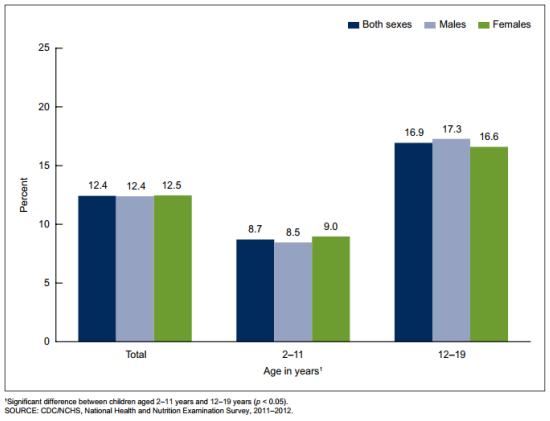

Figure-2: Mean percentage of calories from fast food among children and adolescents aged 2-19 years, by sex and age: United States, 2011-2012

Harmful Effects of Fast food:

Social Hazards:

The fast food consumption has been increased dramatically since the early 1970s which has effect on social health also[5]. With changes in lifestyle, there is increase in the consumption of junk food among school going children[48].

Nutritional habits which is the pre-requisites for learning is decreased as well as the strength-children need for making friends, interacting with family, participating in sports and games or simply feeling good about them due to more consumption of out of home meals[5].

Obesity, Overweight & Fast food:

Dietary habits and lifestyle practices are the important determinants for overweight[31-34]. The dietary factors associated with overweight were due to increased frequency of eating at fast food and having sweetened tea or coffee[49]. The shift from healthy, homemade food to more convenient, longer lasting fast foods combined with a sedentary lifestyle has resulted in obesity and related health complications[34,50].

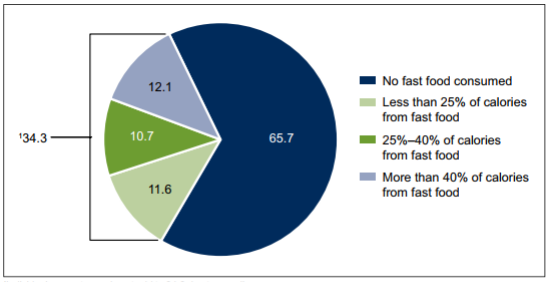

Figure-3: Percentage of children and adolescents aged 2-19 years who consumed fast food on a given day, by calories consumed: United States, 2011-2012

There are almost 500 million people are obese and two billion overweight or obese in worldwide[51-53]. Kuchler claims that promotion strategies by fast food companies are also responsible for rising obesity rates[1].

Consumption of fast food among children in the United States have an adverse effect which increased risk for obesity[10]. In China obesity rates also have increased rapidly in the past few yeras[54,55].

Several studies have been performed to observe the association between fast food and obesity[26]. The majority of the study were conducted in Western countries and showed positive association between fast food and obesity[56-61].

A systemic review based on 16 studies conducted in Western countries examined the association between fast food and risks of weight gain and obesity, and revealed mixed results[58]. In a previous study of over 24,000 children aged 2–18 years in Beijing found that children consuming western fast food ≥ 3 times per week were 1.50 times overweight or obese compared to children with fast food <1 time per week[62].

A longitudinal study (during 2000-2009) was done to see the associations between changes in BMI, WHtR (Waist-Height Ratio) and WHpR (Waist-Hip Ratio) and changes in Western fast food which revealed positive association between the number of Western fast food consumption and subsequent increase in central adiposity[63].

A study was done on young adults to see the association between fast food consumption and change in BMI over a 3-year period also showed that increased fast food consumption was associated with a higher BMI[64].

Rouhani et al. found increased incidences of overweight and obesity among Isfahani (Iranian) girls aged 11-13 years those who intakes of fast foods more[65].

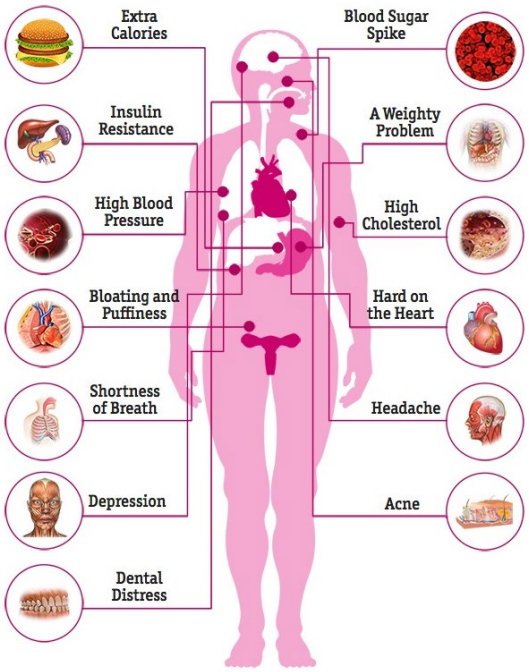

Figure-4: The effects of Fast Food on the body

High consumption of JF has been identified as a major cause of overweight in India among school age children from 9.7% to 13.9% from 2001 to 2010[66]. In some previous studies it was found that high consumption of fried foods and sugary drinks has been significantly associated with high body mass index and weight gain in children[67,68].

Some researchers also found that those who ate fast food at home and also those students who attended school close to fast food restaurants were more probable to be overweight[69].

Fast food eating on regular basis can increase the risk of weight gain and obesity because of having a high energy density with the presence of high levels of fat and sugar in the meal and a correspondingly low level of fiber and protein[31,34,38].

A study was done in an urban private medical student in Bangladesh, showed that a quarter of respondents were overweight which is higher than the national average[49].

The students who used to eat at fast food shops 2-3 times per month were more likely to be overweight as compared to the other groups who eat at fast food shops once per month or less[49]. Eating at fast food shops was also found to be associated with gaining weight in other studies[64].

Consumption of fast foods two times or more per week has been associated with 31% higher prevalence of moderate abdominal obesity in men and 25% higher prevalence in women[70].

Obesity is associated with an increase in respiratory problems. Even without diagnosed medical conditions, obesity may cause episodes of shortness of breath or wheezing with little exertion. Obesity also can play a role in the development of sleep apnea, a condition in which sleep is continually disrupted by shallow breathing and asthma[70,71].

A recent study published in the journal Thorax suggests that children who eat fast food at least three times a week are at increased risk of asthma and rhinitis, which involves having a congested, drippy nose[70,71].

Regular consumption of fast food meals was related to increases in energy intake of 56 kcal/day and 187 kcal/day among adults and children, respectively[70,71]. A higher frequency of fast-food consumption was associated with a weight gain of 0.72 kg over 3 years and of 4.5 kg over a 15-year period above the average weight gain[71,72].

Non-Communicable Disease & Fast Food:

The Global Burden of Disease study found diet as a major factor for increasing hypertension, diabetes, obesity and other CVD[73]. Increased consumption of junk food is also associate with increased risk of early development of diet-related noncommunicable diseases[29,48,74,76].

It is no longer confined to the developed countries but also spread to the developing countries as well[29,30]. The young generation taking unhealthy fast foods causing a long-term negative effect on their health[38].

Frequent consumption of fast food has adverse effects on human health because of its excessive content of energy and fat and low nutritional value[75,77-80].

High consumption of junk food is also responsible for increased risk of early development of diet-related noncommunicable diseases, including hypertension, dyslipidemia, impaired glucose tolerance, metabolic syndrome, musculoskeletal disorders and cancers[29,30,48,74].

Non-communicable diseases (NCDs) are increased day by day in low middle-income countries (LMIC) because of changing of lifestyle with increasing urbanization, economic development and globalization[81]. Unhealthy dietary patterns also have negative environmental impacts on climate change[81].

There is a relation between different type of cancer and Fast Food consumption also. One of the major causes of Gastro-intestinal Carcinoma is fast food consumption and it can be 25% due to high fat and fried food[39]. Though most of the fast food users are well informed about the negative effects associated with fast food consumption, but they were still reported to have fast food in regular basis without considering their health complications[30]. In the long run which will increase their healthcare costs also[30].

Oral Health & Fast Food:
There is also a convincing evidence base linking of poor oral health, in particularly periodontal disease, to amplified CVD risk. Periodontal disease occurs as the result of untreated dental caries, which is in turn driven by a number of factors including poor oral hygiene and excess sugar consumption[82].

Behavioral Symptoms & Fast food:
In Norwegian adolescents, showed that those having high junk food were more likely to have hyperactivity-inattention disorder[83].

The latest nationwide cross-sectional sample survey for assessing psychological symptoms of adolescent and eating habits found that fast foods pattern, sugar sweetened beverages pattern and the meats pattern were significantly associated with higher risk of psychological symptoms[84].

Metabolic Consequences & Fast Food:
Food dense in calories, when oxidized in the body causes enormous formation of acetyl Co-A. Acetyl Co A in excess is channelized out of mitochondria for its participation in other metabolic pathways and for its effective utilization. These pathways include denovo fatty acids synthesis and biosynthesis of cholesterol, which causes excess fatty acid and cholesterol formation[85].

Another pathway which acetyl Co A is involved in formation of ketone bodies, which is inactive when energy levels are high, but is active in case when impaired glucose tolerance sets in. Carbonated soft drinks, in addition to towering amount of sugar reportedly contain methylglyoxal (MG), which is strongly associated with human carbonyl stress[86].

Prevention:
The younger people who are getting addicted to fast food, which may arise a serious public health concern and urgent action should be taken to tackle this public health problem[31,32,72,87,88].

Balanced diet should be given preference instead of junk or fast foods not only by young people but also in all age group[5]. Specific health education programme, dietary guidelines and effective public awareness campaigns should be initiated against the unhealthy lifestyle of university students and improve their health[29]. A combined initiative from families, universities, public health experts and the government is needed to tackle this public health problem[30].

Figure-5: Recommendation for decreasing the consumption of Fast Food

Conclusion:
The rapid growth of the FF industry has become a public health concerns considering its negative health consequences including obesity related risks. Children, parents and general public should be advocated about the associated ill health effects of the junk foods in various forms. Ensuring availability of variety of healthy food menu at markets or restaurants will give better options for general public, thereby promoting healthy lifestyle.

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