Fast Foods Consumption in Benghazi City, Libya

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Dedication

To My Parents spirit

To My Brothers and Sisters

To My family and friends

I wish to dedicate this work.

Hamdi Taguri

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The Whole Gratitude is due to ALLAH

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Hamdi Taguri

Table (List) of contents

Contents   **Page No.**

Chapter five: **Discussion**

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION

FAO	Food and agriculture organization
WHO	World health organization
NHANES	National Health and Nutrition Examination Survey
BMI	Body mass index
HDL	High density lipoprotein
LDL	Low density lipoprotein
SPSS	Statistical package for social sciences
SD	Standard deviation

LIST OF APPENDICES

Fast Foods Consumption in Benghazi City, Libya

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Abstract

The study of the fast foods consumption were important because of its impact on the patterns of food consumption among the Libyan society, our study aimed to determine the frequency of fast food consumption among consumers in Benghazi city with concern to the factors affecting their consumption, comparison between modern and traditional fast foods in terms of consumption, and by weight analysis in terms of the caloric value of the consumers most preferred fast foods.

The study included four-hundred participants from fast food restaurants, parks and shopping centers in Benghazi city. The questionnaires were used to collect data among the study population. Anthropometric measures (weight and height) were taken to calculate BMI, and from five different restaurants, fifty samples of fast food were collected.

The study shows that the most of participants were young people, especially those less than forty years of age. Men were higher than women and the predominant categories were students and employees. Most participants consumed fast foods on a daily basis, especially at lunch and dinner in fast food restaurants, and preferred both traditional and western fast foods. Taste and enjoyment of eating with family and friends were the most influential factors on participants fast food consumption, western fast food samples were higher in terms of total caloric content than traditional fast food samples.

The study concluded that fast-food consumption were a growing phenomenon among consumers in Benghazi city and revealed that fast food is a concentrated source of energy with low nutritional value.

1.1 Introduction:

Food consumption is a daily act that accompanies us throughout our lives. Each day, the market is invaded by a multitude of products and offers different services which, apart from their indispensability in our lives, fascinate and attract us and we are often tempted to buy and test them. From an early age, products and services fall within our universe, ever reminding us that we live in a consumer society and we are devoting more and more of our time and energy to consumption. (Goubraim and Chakor, 2015).

Fast foods may define as ''the food that having little nutritional value and high fat, sugar, salt, and calories. It's simply means an empty calorie food''. An empty calorie food is a high calorie or calorie rich food which lacks in micronutrients such as vitamins, minerals, or amino acids, and fiber but has high energy (calories).
(Deepthi 2012 and Mhaske, 2013).

As a general term fast foods may defined as ''limited foods menu that lend themselves to production-line techniques; suppliers tend to specialize in products such as hamburgers, pizzas, fried chicken, or sandwiches''
(Akbay et al., 2007).

Fast food is one type of food that able to prepare in short time period and sell to customer in reasonable price. (Ying, 2016).

However, one neglected issue is the consumer's perception of the definition of fast food, as many consumers view fast food to comprise only Western-style products, despite that, many local foods could be considered to be fast food also. (Musaiger, 2014).

Traditional foods are foods and dishes that are passed through generations or which have been consumed many generations. Traditional foods and dishes are traditional in nature, and may have a historic precedent in a national dish, regional cuisine or local cuisine. (Saunders, 2010 and Kristbergsson, and Oliveira, 2016).

Traditional foods are foods that prepared from local ingredient such as falafel, beans, etc. (Banaemah, 2008).

The fast food business, initially conceived in Southern California during the 1940s, not only changed the eating habits of Americans, but also those in several other countries around the world. (Yahya et al., 2013).

Over the past few decades, eating habits have dramatically shifted. The busy and hectic lifestyle opened the way for fast food industry around the world. Fast foods

became a multibillion dollar industry that has a widespread influence on eating. More people recently tended to eat in these places than three decades ago that became among the popular sources of away-from-home foods. (AL- Daghri, 2012).

In earlier period people used to consume vigorous, freshly ready food with their relatives in the residence. While in recent years, the major food consumption trend in urban parts of developing countries is that more consumers are eating increasingly more meals outside of their homes and most of the growth in away-from-home eating has been in the fast food sector. Nowadays though, several people, mainly young people, have a preference to consume fast food such as hamburgers, fried chicken, or pizza. (Habib et al., 2011 and Yahya et al., 2013).

Fast foods comprise a growing portion of foods eaten outside the home especially among urban populations both in developing and developed countries. The consumption of Western fast foods like in the developing countries has been increasingly gaining popularity. (Bowman et al., 2004 and AL- Daghri, 2012).

Recent trends of food consumption patterns in eating out among teenagers and youth have been greatly increased and fast foods won the palate of them. Not only do patterns of food consumption differ markedly among nations and culture what comprise fast foods, also vary from one country to the other. (AL- Daghri, 2012).

The most obvious advantages of fast foods, they are convenient, quick to serve, readily available alternative to home food and quite affordable. Consumers patronize fast food to save time, satisfy their hunger, for pleasure and for social interactions.

Whiles convenient and economical for modern day lifestyle, fast foods have some disturbing disadvantages. They are typically high in calories, fat, saturated fat and salt, they are often made with ingredients formulated to achieve certain flavor or consistency and to preserve freshness. This requires a high degree of food engineering, the use of additives and processing techniques that substantially alter the food from its original form and reduces its nutritional value. (Nondzor and Tawiah, 2015).

Consumption of fast foods is associated with obesity, hypertension, dyslipidemia, impaired glucose tolerance, type 2 diabetes, coronary artery disease, dental caries and gastritis. Especially in young aged, fast foods are not only unhealthy but addictive and create a vicious circle making it hard to choose healthy food. The concerns with fast foods consumption in developing countries also include poor hygiene during preparation, storage and handling leading to microbial contamination. (El-Gilany et al., 2016).

The high consumption of fast food is a worldwide phenomenon. For instance, 80% of United States people consumed fast food, compared to 67% in New Zealand, 63% in Australia, and 56% in the United Kingdom. In Malaysia, 82% of respondents preferred Western fast food. In Bahrain, 80% of adults consumed fast food. (Musaiger, 2014).

In Libya, information regarding frequent of fast food consumption are scarce, especially in Benghazi which is the second largest city in Libya, with a population of 562.067 individuals. The percentages of young people aged from twenty to forty years were 35.8 % according to Bureau of Statistics and Census, National Population Survey 2012. (Appendix A)

In addition there is a widespread of fast food restaurants in the city and according to the ministry of economics; the approximate total number of restaurants in the city are more than 150 restaurants.

All of the above necessities research to fill the gap in knowledge regarding this phenomenon.

1.2 Objectives of the study:

1- To determine the frequent of fast foods consumption in Benghazi city with concern to the affecting factors.

2- Comparisons between modern fast foods and traditional fast foods in terms of consumption.

3- By weight analysis in terms of calorific value for the most preferred fast foods by consumers.

2. Review of literature:

2.1 Fast Food Consumption

The collective effects of modernization, urbanization, and globalization have greatly impacted common dietary practices. Addition of fast foods in the regular diet has been so popular that in many countries traditional diets are often being replaced by 'modern' westernized fast foods. (Ying, 2016).

The effects of these changes have altered the tradition of cooking and eating at home. People are now more reliant on ready-to-eat meals offered by businesses for their daily sustenance and the most popular among them are fast foods.
(Nondzor and Tawiah, 2015).

The prevalence of increasing fast food consumption is seen in the developed and developing countries where fast food has become an inseparable part of regular diet. Fast foods, with new tastes and looks are invading the developing countries and inspiring a new interest among the consumers. Fast foods are convenient, attractive and are often associated with a sense of smart urbane feeling in the non-Western countries. The so called fast paced lifestyle of developed/developing nations may be seen as the main motivating factor in the rise of fast food industries. In contrast, the developed nations such as in the United States, where fast foods have become a part of the regular diet. (Ying, 2016).

The emergent culture of eating-out has been attributed to broader socioeconomic changes including rising affluence, increased participation of women in the workforce, urbanization and changes in economic policies allowing for market penetration of transnational food companies and chain restaurants.
(Naidoo et al., 2017).

Restaurant foods are appetizing and convenient to fit the demands of fast-paced lifestyle of the contemporary society. The number of fast food outlets and sales increased dramatically, the frequency of fast food restaurant visits and reliance on convenience foods, especially fast food, brought a radical change in the dietary practice of developed and developing countries over the last decays.
(Schroeder et al., 2007 and Chakraborty, 2012).

There are some other elements that may encourage people to eat at fast food restaurants including ease of access, availability, quick service, no wait staff, heavily advertised, low prices, paying for meals before they are received, and the option to consume the meal at the restaurant, takeout, or drive through or even free delivery. (Deivanai, 2016).

2.1.1 Nutrition Transition

Globalization of the fast food and other modern food sectors is beginning to affect eating patterns in several countries thereby undergoing nutrition transition. (Chizzolini et al., 1999).

Nutrition transition which is a global change in the quality and quantity of dietary patterns, that characterized by high consumption of energy, fat (especially of animal origin), added sugars and salty foods and low intakes of complex carbohydrates, dietary fiber, fruits and vegetables. (Bowman, et al., 2004).

These dietary transitions are associated with the escalating trends of obesity and non-communicable diseases like diabetes, hypertension and dyslipidemia risk factors which act independently and synergistically with major changes in diet, physical activity and socioeconomic status. (Musaiger, 2007).

In United States, the analysis of data from the National Health and Nutrition Examination Survey (NHANES) indicate increases in quantity and energy density of foods consumed in the United States from 1976 through 1980 and from 1999 through 2002. Adjusted estimates from the US Food Supply indicate that per capita calorie intake increased by more than 300 kilocalories (kcal) among the entire population from 1985 through 2002. (Anderson et al., 2011).

In the Arab countries (Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Saudi Arabia, Sudan, Syria, Tunisia, Yemen, and United Arab Emirates) food consumption patterns and dietary habits have changed markedly during the past four decades. There has been an increase in per capita of energy and fat intake in most of these countries. Data from food balance sheet (FAO, 2000) showed an increase in calories supplies during 1971-2000 in these countries, and a high percentage of these calories came from animal foods. The daily per capita fat supplies showed impressive increases, the percent of increase ranged from 13.6% in Sudan to 143 % in Saudi Arabia. In Libya daily per capita of fat consumption 43%, during same period. (Musaiger, 2007).

2.1.2 Variables That Affect Fast Food Consumption

According to the Keynote (2003), nine major factors affect fast-food consumption; Social Development, Economic Forces, Political Climate, Technological Development, Ecological Development, Market Forecasts, Buying Groups, Equilibrium of Power and Regulatory Framework. Among these factors, the societal development was treated as the most important affecting variable that included (i) time constraints – busy lifestyle, longer working hours, beanpole family and career women, (ii) new demographics – single person households, age re-targeting and the rise of the "sandwich" generation (iii) the health dynamic – search for healthier foods and food source (iv) away-from-home eating habits, and (v) new consumer tastes and eating habits.

Richardson and Aguir (2003) examined the attributes affecting fast food consumption. They found that the main attributes regarding traditional fast food provision such as taste, cleanliness, convenience, speed and predictability were ranked high in the choice of a fast-food item. However, other attributes such as healthiness, provision of choice, and friendly staff were relevant to consumers when they were thinking of alternative outlets. (Habib et al., 2011).

Several other factors found to be associated with the consumption of fast food, including age, gender, variety, price, delivery services, convenience, location, cleanliness, nutritional value, quality, taste, speed service, and seating capacity. (Musaiger, 2014).

In Sweden, a conducted survey aimed to investigate perception of the fast food industry by exploring consumer behaviour, determining key attributes of perceived value and by assessing customer satisfaction level. The results of this study revealed that the primary purpose of a visit to a fast food outlet is for social activities (such as friends get together), for convenience or for change and fun. Consumers of local fast food outlets are overall satisfied with their fast food restaurant experience. Additionally, consumers exhibited high importance towards certain attributes such as quality and nutritional value of products, cleanliness and hygiene of the dining premise, quality and speed of the service handling. Menu variety was amongst perceived important value attributes. (Mammadli, 2016).

A study conducted in Saudi Arabia, aimed to review the existing data on fast foods intake among Saudi population and provide an insight view on the frequency of intake among the different age groups, by gender and in the different regions of the country. The findings of this study showed that there is a widespread of fast food consumption among different group age, affecting both male and female, more frequently among urban than rural, and lowest in small cities.(Benajiba, 2016).

In Madurai city district in India, a study was carried out to analyze the customer's behavior and level of satisfaction towards fast food products, to study the factors influencing to preference of fast food restaurants in Madurai district. The results of this study showed that factors like quality of fast food product, environment both internal and external; price of the products is significant related to customer satisfaction. Some of few variables like co-operation of staff, service quality place, variety of products not significant related to customers satisfaction.
(Deivanai, 2016).

The impact of fast foods on the socio-economic behavior was studied in Moroccan consumers. The main results of this study indicate that Moroccan fast foods consumers are mainly young, leading a busy life and they opt for fast food to gain time and get a quick service. They want a good value for their money, and they are more and more interested in having various choices in terms of fast food. They patronize both traditional fast food restaurants and branded fast food restaurants and are more and more demanding when it comes to hygiene and food safety standards, add to that the Moroccan consumer trusts more the experiences of others (family, friends, etc) when it comes to choose a fast food restaurant.
 (Goubraim and Chakor, 2015).

A cross sectional study was carried out to investigate Consumption, Health Attitudes and Perception toward fast foods among Arab Consumers in Kuwait. The findings revealed that men were more frequently consumed fast food than women. Men were more likely to consume "double" burgers than women. The great majority of consumers considered fast food harmful to health. (Musaiger, 2014).

Ayo, et al., (2012) studied the determinants of fast food consumption in Kampala, capital of Uganda. This study was aimed to assess characteristics influencing the consumption of fast-foods in Kampala district. The results from this study show that household size, education level and distance from work-place to restaurant were negatively influenced the probability of fast-food consumption and level of expenditure

on fast foods, while disposable monthly income had a positive effect on the probability of consumption and level of expenditure on fast-food.

In America, Anderson et al., (2011). Were Studied the fast food consumption and obesity among Michigan adults. The main objective of this study was to examine the frequency and characteristics of fast-food consumption among adults in Michigan and obesity prevalence. The Findings of this study revealed that regular fast-food consumption was higher among younger adults (mostly men) but was not significantly associated with household income, education, race, or urbanity. The prevalence of obesity increased consistently with frequenting fast-food restaurants. The predominant reason for choosing fast food was convenience.

In Malaysia a survey aimed to understand consumer preference relating to the fast food in Malaysian market, to investigate the trend and pattern of fast food consumption and the importance of various factors affecting the choice of fast food among Malaysian consumers. The Findings of this study suggest that food safety, speed in delivery and food taste suitability has been found as the main influential factors for purchasing the fast food. On the contrary, quality, freshness, easy to cook, and cleanliness are the second priority. Furthermore, 'Halal' status has been indicated as the most important factor for the Muslim consumers. (Habib et al., 2011).

In Myanmar a survey conducted to identify which factors influence on the consumption habit of consumer. This study revealed that there is a relationship between age and fast foods consuming frequency as well as income level and fast foods consuming frequency, but there is no relationship between genders, levels of education and fast foods consumption frequency. (Maw and Piansoongnern, 2010).

The Relationship of Attitudes toward fast food and frequency of fast-food intake was studied among Minnesota adults (USA). The results of this study revealed that frequency of fast-food intake was found to be significantly associated with age, gender, and marital status of the participants. Additionally, frequency of fast-food intake was also found to be significantly associated with perceived convenience of fast and dislike toward cooking but not with perceived un-healthfulness of fast food. (Dave et al., 2009).

Banaemah, H. (2008) studied the effect of traditional fast food intake on prevalence of obesity among adolescent in Jeddah region Saudi Arabia. The findings of this study revealed that, the most of participant preferred taking fast food by its both types; the traditional and western, taste has been one of the most important preferences

to take these foods. There was a reverse correlation between the frequency of taking the traditional fast foods and body mass index (BMI). The study showed that there is no correlation between each of the economic and social status and the nutritional awareness. The study also emphasized that there is no correlation between the frequency of taking the traditional fast foods and the nutritional awareness, besides there is no correlation between the economic status and the frequency of taking the traditional fast foods, while found out a relation between the social status and the frequency of taking traditional fast foods per week.

In India, a study conducted to estimate the importance of various factors affecting the choice of fast food outlets by Indian young consumers. One of the most important results of this study indicate that young Indian consumers have passion for visiting fast food outlets for fun and change but homemade food is their first choice. They gave the highest importance to taste and quality followed by ambience and hygiene. (Goyal and Singh, 2007).

In Turkey, a study investigated the relationship between consumer's fast food consumption frequency and their socio-economic/demographic characteristics and attitudes. The findings of this study indicate that household income, education, age of consumers, household size and presence of children are significantly determinants of the consumer's probability of fast food consumption. The results suggest that higher education and income levels combined to the fact of having children are the characteristics with the highest positive effect on the probability of consumption. In regard to consumer's attitudes, the study suggests that price; health concern and children preferences have a strong impact on consumer's frequency of fast food consumption (Akbay et al., 2007).

In Pakistan, consumer behavior towards fast food was studied in Faisalabad city. The study examined some of the most important socio-economic indicators such as age, education, professional status, income and family size. The results of study showed that the majority of respondents were young, well-educated and economically well off. The study also showed that good food taste, cooperative attitude of staff in fast food restaurants and especially the element of time saving are the factors that motivate consumers to prefer fast food over home cooked food, the study also highlighted the importance of maintaining rates (prices) at such a level where majority of people can afford them. (Zafar, 2002).

2.2 Fast Foods and Nutrition

Diet and nutrition are important factors in the promotion and maintenance of good health throughout the entire life course. Their role as determinants of chronic non-communicable diseases is well established. (Abdel-Hady et al., 2014).

Fast foods are commonly recognized to have poor nutritional quality, its low in iron, Calcium, riboflavin, and vitamin A and C. Consumption of high-fat fast foods contributes to higher energy and fat intake and lower intake of healthful nutrients.
It is also notable that changes in eating patterns such as increases in meals eaten away from home, portion sizes and meal-skipping may be involved in this trend.
(Dave et al., 2009).

There are several factors inherent to fast food, these factors could promote a positive energy balance and thereby increase risk for obesity and diabetes, including: excessive portion size, with single large meals often approaching or exceeding individual daily energy requirement; palatability, emphasizing primordial taste preferences for sugar, salt, and fat; high energy density and high glycemic load.
(Pereira et al., 2005).

Frequent eating out of the home environment has been shown to be associated with less healthful food choices including lower wholegrain and fruit consumption, higher energy and saturated fatty acid intake and lower intake of micronutrients.
(Pearson, 2015).

In Spain, a study on the impact of fast food on energy intake, diet quality, body mass index (BMI) revealed that, dietary energy intake and energy density were directly associated with frequency of fast food consumption. The consumption of fast food more than once per week increased the risk of overall low diet quality. BMI was directly associated with fast food consumption. The risk of being obese increased with the frequency of fast food consumption. Fast food consumption was associated with higher energy intakes, poor diet quality and higher BMI. (Schroder et al., 2007).

In America, study conducted by Bowman, et al., (2004) revealed that, the diet of adults who consumed fast food was high in energy and energy density. Fast food provided more than one-third of the day's energy, total fat and saturated fat; and was high in energy density. Negligible amounts of milk and fruits, but substantially large amounts of non-diet carbonated soft drinks were reported consumed at fast food places. After controlling for age, gender, socio-economic and demographic factors, energy and

energy density increased and micronutrient density decreased with frequency of fast food consumption. Adults who reported eating fast food had higher mean body mass index values than those who did not eat fast food. A small, but significant, positive association was seen between fast food consumption and overweight status.

Another study in America, conducted by Taveras et al., (2013) indicated that, frequency of eating fast foods in older children and adolescents was associated with greater intakes of total energy, sugar sweetened beverages, and trans fat, as well as lower consumption of low-fat dairy foods and fruits and vegetables.

A study to estimate the contribution of fast food to daily energy intake, and compare intake among Canadians with varied demographic, socioeconomic and lifestyle characteristics. This study showed that fast food consumption was significantly higher among respondents who reported lower fruit and vegetable intake, poorer dietary quality, binge drinking, and persons with higher BMI. Socio-economic status, physical activity, smoking and self-rated health were not significantly associated with fast food intake. (Black and Billette, 2015).

Several studies indicate that fast foods would largely contribute to the daily intake of essential minerals (i.e. Ca, Fe, Mg, Zn, Cu, Cr, Mn, Se) but data on its bioavailability are scarce. Recent research suggested that the presence of certain compounds in fast foods could negatively affect the bioavailability of some minerals, especially trace elements like Fe and Cu. (Vique, et al., 2004).

2.3 Nutritional analysis of fast foods

Carbohydrate, protein, and fat are the main sources of calories in the diet. The nutrient requirements vary with age, gender, physical activity and physiological status. It can be easily achieved through a blend of the basic food groups. (Johnson et al., 2012).

There are few studies in concern to the analysis of nutrients in fast foods. One of these studies was carried out in Nigeria to quantify the proximate, mineral and cholesterol concentrations of four commonly consumed local fast foods. The crude fat was ranged between 13.38g % (w/w) and 23.47g % (w/w), crude protein from 2.43g to13.83g % (w/w), while crude fiber was generally low in all the fast foods with the highest content 1.133g % (w/w). Energy content ranged between 279.06 Kcal to 419.77Kcal per 100gram. All the fast foods contained dietary cholesterol and ranged between 7.50mg and 136mg per 100g. This study has established that fast foods are concentrated sources of energy, low in fiber, poor sources of essential minerals and high in dietary cholesterol. (Oyawoye, 2012).

In Bahrain, study was carried out to evaluate the commonly consumed fast foods in Manama city. Findings of Proximate analysis showed a wide variation in the composition and nutritive value. Moisture, fat, protein, carbohydrate and fiber contents ranged from 30.35-54.02%, 8.74-17.33%, 4.41-18.23% ($n \times 6.25$), 12.14-43.81% and 0.56-3.43 % (w/w) respectively. The range in the energy value was between 215-349 Kcal/100 g. Cholesterol levels were negligible in the vegetable dishes but high in dishes with meat and dairy products (<1.00-35.47 mg/100 g). (Musaiger et al., 2008).

In India, a total of 23 fast food samples were collected from Delhi Outlets and analyzed for Salt, total carbohydrates, total fat and Tran's fat content. The finding of this study for total carbohydrate content in gram per 100 g of sample was ranged from 14 to 73.3. Total fat ranged from 7.1g to 37.8g per 100 g of the sample. Tran's fats were ranged from 0.1 g to 1.6 g per100 g of the sample. Salt content was in the range from 0.2 g to 4.2 g per 100 g of sample. The results of the study indicate that fast foods contain high levels of sugars, salt and Tran's fats. High levels of Tran's fats are a public health concern due to its association with chronic heart diseases. (Johnson et al., 2012).

In Egypt, study was directed to investigate the biochemical composition, microbiological quality and biological evaluation of some fast food meals. The results of biochemical composition of fast food meals showed that, the contents of protein ranged from 13.61 to 26.31 % (w/w), fat from 33.42 to 43.76 % (w/w), carbohydrate from 25.38 to 42.32 % (w/w), fiber from 4.26 to 7.05 % (w/w). Calories provided from 100g dry sample were ranged from 545.65 to 589.77 Kcal. This study has indicated that fast foods are concentrated sources of energy, low in fiber. (Al-Daghri, 2012).

2.4 Fast Food and Health

Health problems relating to malnutrition have been mostly receding worldwide with the exception of few countries, and have been replaced by chronic health problems such as obesity and problems with overweight, diabetes, high cholesterol, hypertension, and coronary heart diseases. These current patterns of health problems mostly involve non communicable diseases and are, for the most part, lifestyle related. (Ying, 2016).

For all countries, current evidence suggests that the underlying determinants of non- communicable diseases are largely the same. These include increased consumption of energy-dense, nutrient-poor foods that are high in fat, sugar and salt, reduced levels of physical activity and of particular concern are increasingly unhealthy diets and reduced physical activity of children and adolescents.
(Benajiba, 2016).

Obesity is simply defined as a condition of abnormal or excessive fat accumulation in adipose tissue, to the extent that health may be impaired. Obesity is measured by various methods such as body mass index (BMI), waist circumference, waist-hip ratio, skin fold, and percent body fat measurements. The majority of studies use BMI. The increased consumption of fast foods has been shown to be positively related to an increase in BMI. (Musaiger, 2007 and Ying, 2016).

Excess weight is associated with increased incidence of many diseases including: type 2 diabetes, hypertension, dyslipidemia, cardiovascular disease, osteoarthritis, and some cancers. (Creel, 2006).

Increased fast food consumption may lead to increased intake of fat, especially animal fats, salt, sugar and other non-sugar sweeteners. When accompanied by less physical activity, this excess load of fat and calories in the diet, may invite chronic health problems. Consumption of fast foods is associated with obesity, hypertension, dyslipidaemia, impaired glucose tolerance, type 2 diabetes, coronary artery disease, dental caries and gastritis. Especially in young aged, fast foods are not only unhealthy but addictive and create a vicious circle making it hard to choose healthy food. (El-Gilany et al., 2016).

Due to deep-frying in partially hydrogenated oils (or trans fats), fast food consumption leads to high cholesterol rates and increased risk of cardiovascular disease. (Benajiba, 2016).

Consumption of takeaway and fast food has been shown to have adverse health effects, more frequent consumption of meals prepared outside of the home has been observed to correspond with increased risk of insulin resistance, type 2 diabetes, elevated total cholesterol, and low-density lipoprotein cholesterol (LDL-C) levels as well as decreased high density lipoprotein cholesterol (HDL-C) concentrations. (Jaworowska et al., 2013).

Metabolic syndrome which is a collection of metabolic abnormalities, including abdominal obesity, hypertriglyceridemia, low high-density lipoprotein-cholesterol (HDL-C) concentrations, hypertension, and hyperglycemia , that has a strong association with the development of type 2 diabetes and cardiovascular morbidity and mortality in adults. A Study in Tehran had revealed that fast food consumption is associated with the incidence of metabolic syndrome, abdominal obesity, and hypertriglyceridemia in Tehranian children and adolescents. (Asghari et al., 2015).

As society is becoming technologically more advanced and informative, individuals tend to be more aware about their own health. As part of this awareness, more attention is now given to a healthy lifestyle involving diet and exercise habits. Though the level of awareness varies from individual to individual, the fact that fast food and its nutrition content may worsen certain health conditions, or may invite health problems is now well-known. In spite of the growing awareness, the use of fast food is increasing and leaving generations where obesity, heart diseases, hypertension, diabetes are common in many families. (Creel, 2006).

In this regard, it is important to note that the changing pattern of food-related health problems has been a historical phenomenon and has generated substantial interest among the researchers. The historical journey from the stages of malnutrition and famine, poor sanitation problems, and other communicable diseases to the recent escalating trend of the consumption of excess food (especially in the developed and even in developing countries) and overweight/obesity and other chronic diet related non communicable diseases has been shown by researchers. (Ying, 2016).

3. Methodology

3.1 Study design: Descriptive cross sectional study.

3.2 Population of the study:

All individuals attending fast foods restaurants, parks, and malls in Benghazi city was targeted in this study. The sample was collected randomly from 186 restaurants out of 358 restaurants, according to the administrative division of the regions in the city which were divided into 21 regions. (Appendix B)

3.3 Period of the study:

The study was carried out from (August 2017 to January 2019).

3.4 Sample size: The sample of the study consisted of 400 participants.

The sample size was determining by using Richard Jaeger equation

$$n = \frac{\left(\frac{z}{d}\right)^2 \times (0.50)^2}{1 + \frac{1}{N}\left[\left(\frac{z}{d}\right)^2 \times (0.50)^2 - 1\right]}$$

Where N= population size, z = degree of freedom at significant level 0.95 which equal to 1.96, d = error. (Chander, 2017).

3.4.1 Inclusion criteria: All individuals attending fast foods restaurant, parks, and malls in Benghazi city had been collected as random sample.

3.4.2 Exclusion criteria: Individuals out of Benghazi city. Four regions were excluded from the study because they were going through hard times during study period.

3.5 Procedure:

3.5.1 Questionnaire: Data was collected by using questionnaires that designed for matching the study needs among the study population; the questioners were filled by the investigator.

The questionnaire was based on the questions of previous studies with some modifications. (Chakraborty, 2012 and Ying, 2016).

The questionnaire included date regarding Socio – demographic factors such as (age, sex, marital status, occupation, etc.). Fast foods consumption data such as (number of intake, time, type of fast foods consumed, etc.). Variables that affecting fast foods consumption such as (advertisements, cost, taste of fast foods consumed, etc.). Nutritional knowledge such as (nutritive value, nutrient, calories in fast foods, etc.). (Appendix C)

3.5.2 Anthropometric measurements:

Weight and height were measured, and BMI was calculated from the anthropometric data for each participant.

Weight was measured using a Seca weighing scale, the scale was calibrated before using, Subjects were weighed with minimally clothed, without shoes, weight was recorded to nearest zero point one kg.

Height was measured using a Seca height scale, and measured to the nearest zero point five cm.

BMI was calculated from the anthropometric data by using the equation:

BMI = weight / (height in meters) ^{2} and classified according to WHO classifications (WHO, 2000). (Appendix D)

3.5.3 Analysis by weight of fast food samples:

From five different restaurants, a total of 50 fast food samples (sandwiches) were collected, 10 types of the most commonly consumed fast foods; 5 traditional fast foods and 5 modern fast foods. A description of fast food samples ingredients shown in (Appendix E).

Firstly, each ingredient of the samples (sandwiches) was weighted alone, and then the total weight of each sample as whole was obtained. The samples were weighted using Monobloc top laboratory balance.

The samples macro nutrients (carbohydrate, fat, and protein) were calculated using food composition tables. To obtain the total caloric content, each component multiplied by corresponding calorific value.

3.6 Data Analysis:

Data were analyzed using statistical package for social science (SPSS) version 18.

Descriptive statistics as mean, maximum, minimum, standard deviation, and percentages were used.

Inferential statistics were used when needed; the statistical significance of an association between categorical variables was assessed by using correlation test (r).

The correlation between the variable where calculated and considered significant correlation when $P \leq 0.05$. (Appendix F)

Data were presented in form of tables and figures, where the figures done by Microsoft Excel 2010.

4. Results:

4.1 Demographic data

Table (1) shows that the study sample consisted of four hundred participants divided into four age groups. The majority of participants were aged between twenty one and thirty years with a percent of fifty point three, followed by a percent of twenty eight point five for participants less than twenty years, and seventeen point seven for participants aged between thirty one and forty, the least three point five percent were for participants aged over forty years.

Table (1): Age groups of participants

Age group	No.	%
< 20 yrs.	114	28.5
21-30 yrs.	201	50.3
31-40 yrs.	71	17.7
> 40 yrs.	14	3.5
Total	400	100

Table (2) shows that eighty three point five percent of participants were males; sixteen point five percent was females. In addition, seventy six point five percent of participants were single; and twenty three point three were married and one participant was widowed. However, student, employee, unemployed were account fifteen point three, thirty seven point five, and twelve percent respectively, and only one participant was retired.

Table (2): Demographic characteristics of participants

variables	No.	%
Gender		
Male	334	83.5
Female	66	16.5
Marital Status		
Single	306	76.5
Married	93	23.3
Widowed	1	.2
Occupation		
Students	201	50.3
Employee	150	37.5
Retired	1	.2
Freelancers	0	0
Unemployed	48	12

Figure (1) shows the distribution of participants according to the daily number of working hours were forty three point five percent working from six to eight hours, thirty nine point five percent more than eight hours and seventeen percent was less than six hours of working daily.
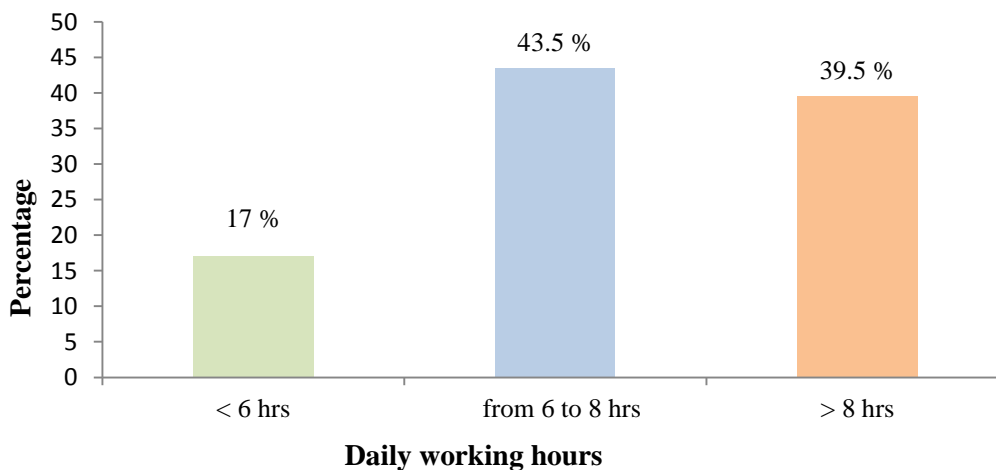
Figure (1): Distribution of participants according to the number of daily working hours

4.2 Fast foods consumption patterns

Table (3) shows that the consumption of fast foods three times a week account the highest with thirty four point seven percent, followed by more than four times with a percent of thirty three point eight, once and twice a week account seventeen and fourteen point five respectively.

Table (3): Distribution of participants according to the weekly frequency of fast foods consumption

Frequency of consumption in week	No.	%
Once	68	17.0
Twice	58	14.5
Three time	139	34.7
More than four times	135	33.8
Total	400	100.0

Figure (2) shows that thirty two point five percent of participants consume fast foods on a daily basis, and thirty one percent weekly, while twenty eight percent in holidays, eight point three percent for celebration and only one participant in vacations.
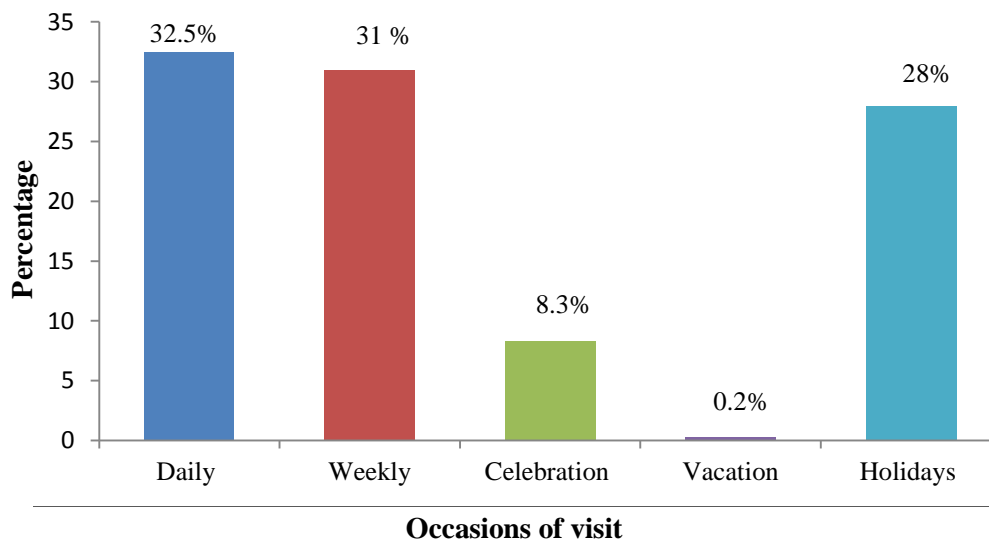
Figure (2): Distribution of participants according to the occasions of visiting fast foods restaurants

Figure (3) shows that most of participants preferred to consume fast foods at the dinner with a percent of forty two, while for lunch a percent of thirty four, and the least to breakfast with a percent of twenty four.
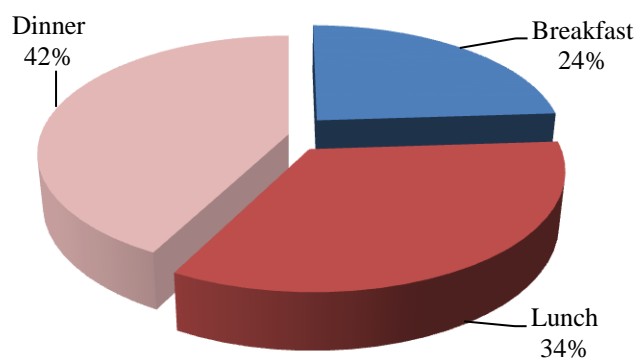
Figure (3): Distribution of participants according to the preferred daily meal

Table (4) shows the timing of fast foods consumption, the percentages were thirty eight point eight from six PM to ten PM, twenty nine point five from two PM to six PM, twenty four point five from eleven AM to two PM, five point two before eleven AM and two percent for after ten PM.

Table (4): Distribution of participants according to the preferred time of fast foods consumption

Preferred Time	No.	%
Before 11:00 AM	21	5.2
11:00 AM to 2:00 PM	98	24.5
2:00 PM to 6:00 PM	118	29.5
6:00 PM to 10:00 PM	155	38.8
After 10:00 PM	8	2
Total	400	100

Table (5) shows the places where participant consume fast foods, forty five percent were preferred to consume fast foods in restaurants, forty one point two percent eat fast foods at home, and thirteen point eight percent in their cars.

Table (5): Distribution of participants according to the place of fast foods consumption

Place	No.	%
Restaurant	180	45.0
Car	55	13.8
Home	165	41.2
Total	400	100.0

Figure (4): shows that sixty five percent of participants preferred to consume carbonated beverage with fast foods, while twenty eight percent prefer natural fruit juice, and only five percent and two percent prefer water and tea respectively.
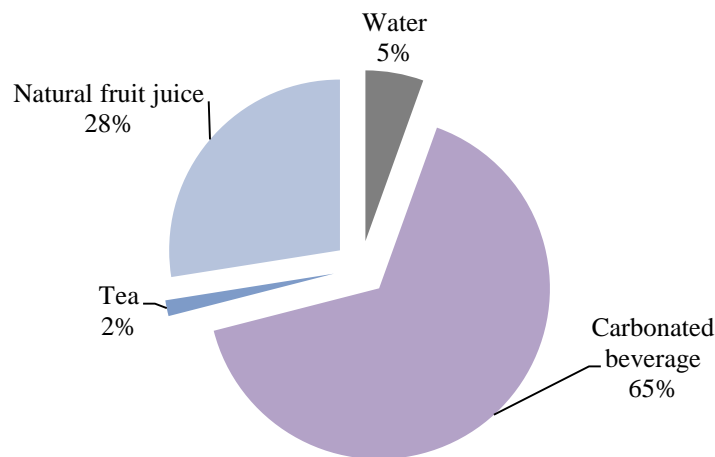
Figure (4): Distribution of participants according to the type of drink consumed with fast foods

4.3 Variables associated with fast foods consumption

Table (6) shows that, fifty eight point eight percent of participants agreed that advertisements positively effects on their consumption of fast foods, fifteen point seven percent strongly agreed on that, while eight percent were neutral. In contrast one point fife percent disagreed, and sixteen percent of participant strongly disagreed.   Taste as a variable affecting the rate of participant fast foods consumption, forty seven point seven percent agreed that taste positively effects their consumption; forty three percent strongly agreed that, and one point three percent was neutral, while eight percent of participant disagreed.

On other hand the inability to prepare food affect fifty three point eight of participants, nine point three percent were neutral and thirty seven percent considered inabilities to prepare food has no effect.

Regarding Cost, thirty six point two percent strongly agreed that the price of fast foods effects their consumption, twenty nine point eight agreed, and two percent were neutral, while thirty two percent said that price of fast foods has no effect on their consumption.

 Enjoy food with family and friends factor affect frothy point seven percent   of participants whose strongly agreed that enjoy eating with family and friends positively effects their consumption, thirty seven point three percent agreed, two percent was neutral, and three point five percent of participant disagree, sixteen point five strongly disagree.

In addition, about the brand of fast foods, thirty nine point seven percent strongly agreed that brand positively effects their consumption, thirty five percent agreed, and four percent was neutral, while two percent of participants disagreed, nineteen point three percent strongly disagreed.

Furthermore, Moods affects almost the half of participants, were twenty seven percent of participants strongly agreed that mood positively effects their consumption, twenty seven percent agreed. Eight percent was neutral, while thirty two percent of participants disagreed, and six percent strongly dis agreed.

Table (6): Distribution of participants according to the variables associated with fast foods consumption

Variables	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	N	%	N	%	N	%	N	%	N	%
Advertisement	63	15.7	235	58.8	32	8	6	1.5	64	16
Taste	172	43	191	47.7	5	1.3	32	8	0	0
Inability to prepare food	89	22.3	126	31.5	37	9.2	4	1	144	36
Cost	145	36.2	119	29.8	8	2	4	1	124	31
Enjoy food with family and friends	163	40.7	149	37.3	8	2	14	3.5	66	16.5
Brand	159	39.7	140	35	16	4	8	2	77	19.3
Moods	108	27	108	27	32	8	128	32	24	6.0

Table (7) shows that forty four point five percent of participants visit fast food restaurants with their friends, forty three point three percent with family, and twelve point two percent visit it alone.

Table (7): Distribution of participants according to the individuals they with visit the fast food restaurants

Visit with	No.	%
Friends	178	44.5
Family	173	43.3
Alone	49	12.2
Total	400	100

4.4 Health and Nutrition issues

Table (8): regarding to the knowledge about the ingredients of fast foods shows that, sixty three point seven percent of participants were sometimes known and twenty five point five percent sure about the ingredients of fast foods they eat, while ten point eight never know. In addition fifty nine point eight percent of participants were sometimes known about the disease caused by fast food consumption, twenty four percent sure, and sixteen point two percent never known.

Table (8): Distribution of participants according to the knowledge about fast foods composition and disease

Knowledge	Never		Sometimes		Sure	
	N	%	N	%	N	%
Ingredients of fast foods	43	10.8	255	63.7	102	25.5
Disease caused by fast foods consumption	65	16.2	239	59.8	96	24

Table (9): regarding to the participants knowledge about the calories in fast foods shows that, seventy eight point five percent considered fast foods high in calories, twenty point eight percent medium in calories, and point seven percent said that fast foods are low in calories.

In addition, fifty three point seven percent considered fast foods medium in nutrients, twenty three point five percent low in nutrients and twenty two point eight said that fast foods are high in nutrients.

Table (9): Distribution of participants according to the knowledge about the calories and nutrients in fast foods

Knowledge	High		Medium		Low	
	N	%	N	%	N	%
Calories in fast foods	314	78.5	83	20.8	3	0.7
Nutrients in fast foods	91	22.8	215	53.7	94	23.5

Figure (5): shows that forty eight point two percent of participants choose obesity as disease caused by frequent consumption of fast foods, twenty four percent choose cardiovascular disease (CVD), twenty point eight percent choose dislipidaemia, and only seven percent for other disease.
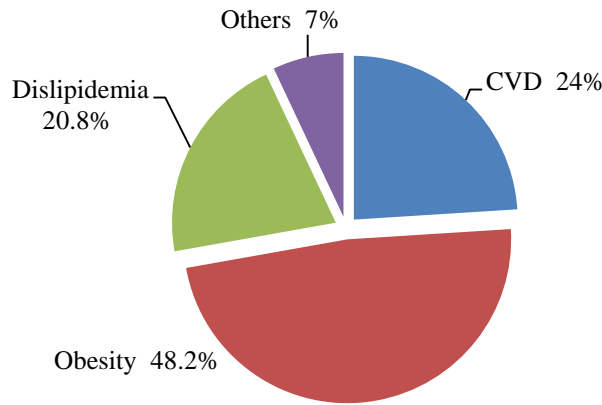
Figure (5): Distribution of participants according to knowledge about the most common disease caused by frequent fast foods consumption.

Figure (6): shows that seventy five percent of participants choose protein as the component in fast foods that has positive effects on health, eight percent for both carbohydrates and fats respectively. More than one component chooses by seven percent of participants, and only two percent of participants choose spices.
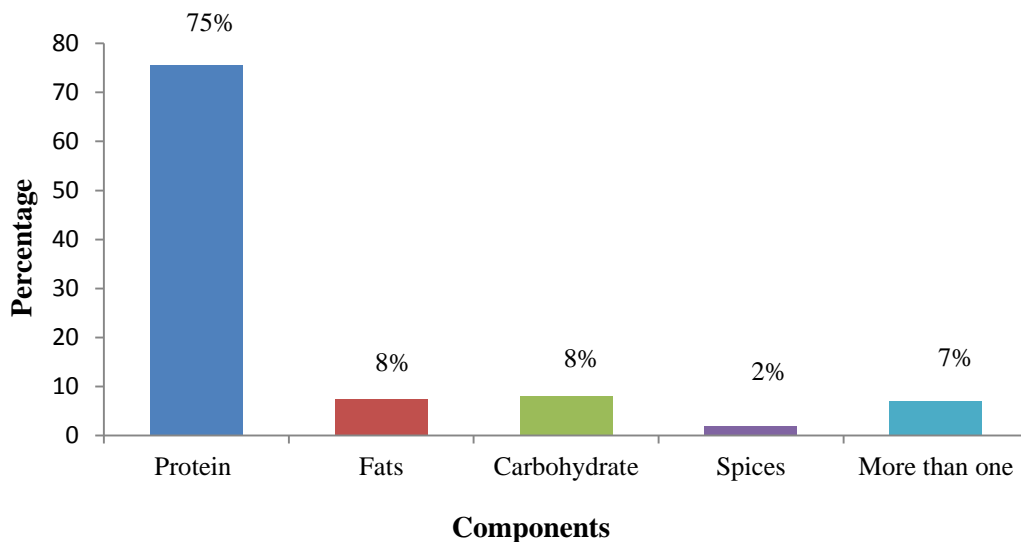
Figure (6): Distribution of participants according to the knowledge about the biochemical components in fast foods that has a positive effect on health.

Figure (7): shows that fifty two percent of participants choose fats as the component in fast foods that has negative effects on health, twelve percent for salts. More than one ingredient was chooses by sixteen percent of participants, nine percent for both condiments and carbohydrates, and only two percent of participants choose protein.
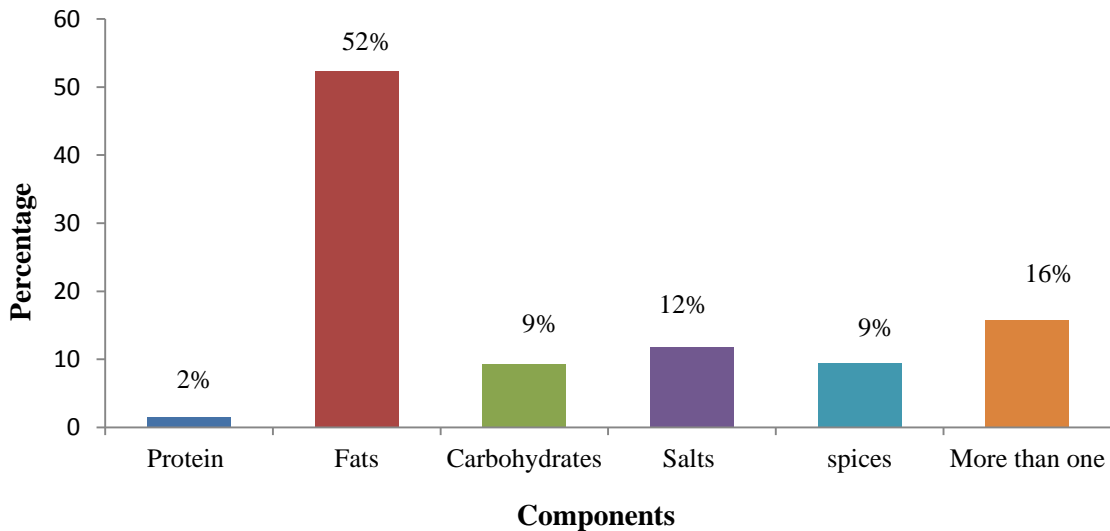
Figure (7): Distribution of participants according to knowledge about the biochemical components in fast foods that has a negative effect on health.

Figure (8): shows that thirty nine percent of participants rarely give importance to the nutritive value of fast foods they consume, while twenty four percent most of time, nineteen percent sometimes, twelve percent not at all, and only six percent always give importance to the nutritive value of fast foods.
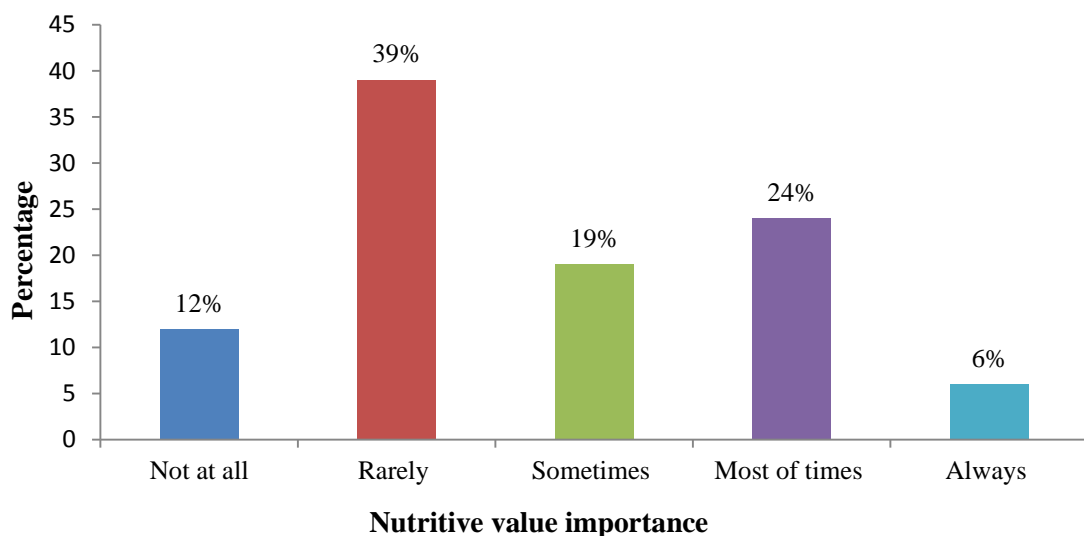
Figure (8): Distribution of participants according to the effect of the nutritive value importance on fast foods consumption.

Figure (9): shows that the majority of participants ninety three percent do not follow any diet control program, and only seven percent on diet control.
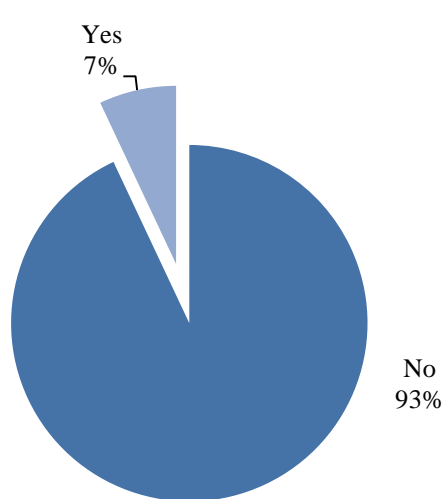
Figure (9): Distribution of participants according to the diet control program

4.5 Anthropometric data

Table (10): shows that fifty three point five percent of participants overweight, twenty eight percent normal weights, sixteen point seven percent obese grade one, and one point eight percent of participants was obese grade two.

Table (10): Body mass index of participants

BMI	No.	%
Under weight	0	0.0
Normal	112	28.0
Over weight	214	53.5
Obese	74	18.5
Total	400	100.0

4.6 Modern and Traditional fast foods consumption

Figure (10): shows that above the half of participants preferred to consume both modern and traditional fast foods with a percent of sixty three, while a twenty two percent prefer modern fast foods only, and fifteen percent for traditional fast foods.
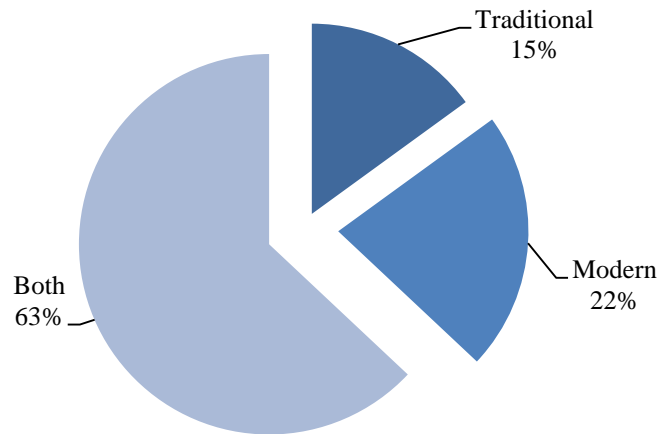
Figure (10): Distribution of participants according to the type of fast foods preferred

4.6.1 Modern fast foods

Figure (11): shows that the most of participants preferred to consume modern fast foods sandwiches with a percent of ninety two, and only eight percent preferred modern fast food meals.
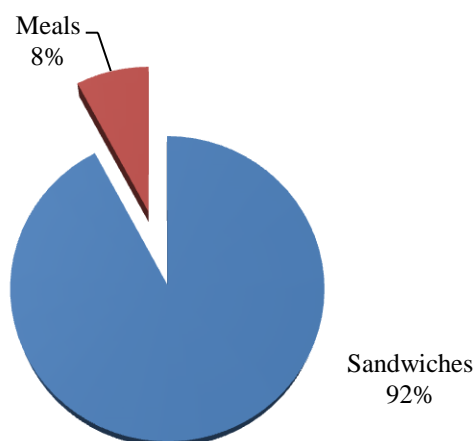
Figure (11): Distribution of participants according to the type of modern fast foods preferred to consume

Table (11): shows that among modern fast food (Sandwiches), almost third of participants preferred Beef Burger, followed by Chicken Shawrma twenty one percent, Banneh twenty point five percent, then Chicken Burger ten percent, Tabona six point two percent, and the lowest for Sheesh four point five percent.

Table (11): Distribution of participants according to the Modern fast foods (Sandwiches) preferred to consume

Modern fast foods (Sandwich)	No.	%
Beef Burger	120	30.0
Chicken Burger	40	10.0
Banneh	82	20.5
Chicken Shawrma	84	21.0
Kebab	31	7.8
Sheesh	18	4.5
Tabona	25	6.2
Total	400	100.0

Table (12): shows that the most preferred modern fast foods (Meals) was Pizza with forty eight point eight percent , followed by Fried chicken thirty six percent, then Barbecue eight point two percent, Chicken Shawrma six point five percent, other meals by point five percent.

Table (12): Distribution of participants according to the Modern fast foods (Meals) preferred to consume

Modern fast foods (Meal)	No.	%
Pizza	195	48.8
Chicken Shawrma	26	6.5
Fried chicken	144	36.0
Barbecue	33	8.2
Other	2	.5
Total	400	100.0

4.6.2 Traditional fast foods

Figure (12): shows that ninety three percent of participants preferred to consume traditional fast foods sandwiches, and only seven percent preferred traditional fast food meals.
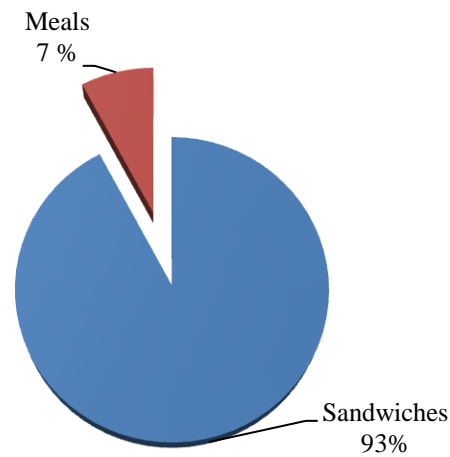
Figure (12): Distribution of participants according to the type of Traditional fast foods preferred to consume

Table (13): shows that the most preferred Traditional fast foods (Sandwiches) were Mshakal mixed Haraime and Foul (filled beans), Haraime, and Fasolia (White beans) sandwiches with a percent of forty nine point six, then Mshakal (mixed falafel and potatoes) ten percent, Tuna and egg Sandwiches seven point eight percent, Glaya seven point six percent, and seven point three percent for both Foul (filled beans) and Chicken liver Sandwiches, Mafroom six percent, finally Falafel with four point four percent.

Table (13): Distribution of participants according to the Traditional fast foods (Sandwiches) preferred to consume

Traditional fast foods (Sandwich)	No.	%
Fasolia (White beans)	53	13.3
Foul (Filled beans)	29	7.3
Haraime	67	16.8
Mshakal (mixed Haraime and Foul)	78	19.5
Glaya	30	7.6
Chiken Liver	33	7.3
Tuna and egg	31	7.8
Mafroom	24	6.0
Falafel	15	4.4
Mshakal (mixed falafel and potatoes)	40	10.0
Total	400	100.0

Table (14): shows that the most preferred Traditional fast foods (Meals) was Falafel with fifty five point five percent, followed by Glaya meal thirty four point five percent, and Mafroom, White beans meals both with a five percent.

Table (14): Distribution of participants according to the Traditional fast foods (Meals) preferred to consume

Traditional fast foods (Meal)	No.	%
Falafel	222	55.5
White beans	20	5.0
Mafroom	20	5.0
Glaya	138	34.5
Total	400	100.0

4.7 By weight analysis of fast foods samples (Sandwiches)

Tables (15) and (16) show the ingredients of the most preferred modern and traditional fast food samples (sandwiches) and their mean weight of five samples for each product.

Table (17): shows that Kebab was the highest in the average carbohydrate content in modern fast foods sandwiches, while the lowest was for Beef Burger. In addition Beef Burger was the highest in terms of average protein content, while Kebab had the lowest protein content. The highest fat content was for Beef Burger, while the lowest was Chicken Shawrma sandwiches.

Regarding traditional fast food sandwiches, Mshakal (mixed falafel, potatoes) were the highest in the average carbohydrate content, while the lowest was Haraime. The highest average protein content was for Fasolia (White beans), while Mshakal (mixed falafel and potatoes) had the lowest protein content. Finally the highest fat content was for Mshakal (mixed falafel, potatoes), while the lowest was Mshakal (mixed Haraime and Foul) sandwiches.

Table (17): Carbohydrates, Protein, and Fat content in Modern and Traditional fast foods samples (sandwiches) per (100 g) (*Mean ± SD)

Modern fast foods	Carbohydrates %**	Protein %**	Fat % **
	Mean± SD	Mean± SD	Mean± SD
Beef Burger	32.7± 3.6	27.7 ± 3.1	27.1 ± 3.8
Chicken Burger	33.6 ± 1.4	18.8 ± 1.7	26.8 ± 3.7
Chicken Shawrma	41.1 ± 1.5	22.1 ± 2.5	12.4 ± 0.3
Banneh	33.8 ± 1.3	22.7 ± 1.4	25.8 ± 1.4
Kebab	50.2 ± 2.7	18.6 ± 1.2	14.3 ± 1.3
Traditional fast foods	Mean± SD	Mean± SD	Mean± SD
Fasolia (White beans)	53.3 ± 18.7	14.6 ± 2.9	3.5 ± 0.5
Haraime	40 ± 2.3	13.6 ± 1.1	4.1 ± 0.4
Tuna and egg	43.1 ± 12.8	11.4 ± 1.7	5.5 ± 0.3
Mshakal (Falafel and Potatoes)	63.4 ± 2.9	10.8 ± 0.9	12.2 ± 1.2
Mshakal (Haraime and Foul)	42.4 ± 1.8	12.5 ± 0.5	3.3 ± 0.2

* Mean of five samples for each product (sandwiches).
** % By calculation.

Table (15): By-weigh analysis of the most preferred traditional fast food samples (sandwiches) (*Mean ± SD)

Traditional fast foods	Egg (g)	Bread (g)	Salads (Lettuce & Tomatoes) (g)	Haraime (g)	White beans (g)	Foul (filled beans) (g)	Tuna (g)	Fried potatoes (g)	Falafel (g)	Total weight (g)
	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD
Fasolia (White beans)	/	102.2±31.08	/	/	39.4±8.67	/	/	/	/	141.6±39.29
Haraime	/	69±4.35	/	24.4±4.15	/	/	/	/	/	93.4±4.50
Tuna and egg	12±1.73	76.6±22.87	/	/	/	/	13.8±1.78	/	/	102.4±22.35
Mshakal (mixed falafel and potatoes)	/	50.8±2.16	10±2.54	/	/	/	/	32.3±3.34	37.4±6.58	130.4±9.01
Mshakal (mixed Haraime and Foul)	/	67.8±3.11	/	18±2.23	/	11±5.51	/	/	/	96.8±4.32

* Mean of five samples for each product (sandwiches).

Table (16): By-weigh analysis of the most preferred modern fast food samples (sandwiches) (*Mean ± SD):

Modern fast foods	Meat/beef (g)	Meat/chicken (g)	Egg (g)	Cheese (g)	Bread (g)	Salads (Lettuce & Tomatoes) (g)	Catchup (g)	Mayonnaise (g)	Total weight
	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD
Beef Burger	92.8±23.47	/	49.8±4.60	12.2±1.30	87.8±8.72	10±1.58	5±1	7±1.5	252.6±23.34
Chicken Burger	/	40.4±1.67	46.8±1.78	9.8±1.48	99±1.58	10±1	5±1	7±1.5	206±0.70
Chicken Shawrma	/	46.8±7.69	/	/	73±3.08	17.8±2.38	5±1	7±1.5	137.6±4.61
Banneh	/	109.6±1.81	/	11±1.22	85.2±10.84	14±1.58	5±1	7±1.5	219.8±9.60
Kebab	43±4.18	/	/	/	83±4.84	6±2	/	/	142±6.96

* Mean of five samples for each product (sandwiches).

Table (18): shows that Beef Burgers were the highest in the average calories contents in modern fast food sandwiches, while the lowest was for Chicken Shawrma. In addition Mshakal (Haraime and Foul) was the lowest in terms of caloric content, while Mshakal (Falafel and potatoes) had the highest caloric content regarding traditional fast food sandwiches.

Table (18): Total Calories of the most preferred Modern and Traditional fast foods samples (sandwiches)

Fast food sample	Total Calories (Kcal / 100 g) *					
Modern Fast foods	Sample No.1	Sample No.2	Sample No.3	Sample No.4	Sample No.5	** Mean ± SD
Beef Burger	474.5	549	442.5	551.4	433.6	**490.2± 56.1**
Banneh	445.2	457.3	451.8	448.5	416.6	**443.9±15.9**
Kebab	400.7	434.4	411.2	371.5	400.1	**403.6±22.6**
Chicken Burger	353	375	353	407.4	365.9	**370.7± 22.4**
Chicken Shawrma	282.8	266.1	278.8	282.5	259.3	**273.9±10.6**
Traditional Fast foods	Sample No.1	Sample No.2	Sample No.3	Sample No.4	Sample No.5	** Mean ± SD
Mshakal (falafel and potatoes)	392.2	386.2	346.5	374	332.8	**366.3±25.7**
Fasolia (White beans)	235.8	261.9	406	433.9	379.7	**343.4±88.9**
Tuna and egg	228.1	315.1	344.6	221.8	227.1	**267.3±58.1**
Haraime	232	257.5	265.6	255.4	247.4	**251.6±12.7**
Mshakal (Haraime and Foul)	239.8	249.1	255.9	243.4	260.1	**249.6±8.4**

* By calculation: CHO % x 4, Fat % x 9, Protein % x 4.
** Mean of five samples for each product (Sandwiches).

5. Discussion

This study was conducted with consumers at fast food restaurants and the results addressed their demographics, main attributes influenced their consumption habits, health and nutrition knowledge, moreover the study included comparisons between Traditional and Modern fast foods consumption, and by weight analysis of some fast food samples. A total of four-hundred (400) participants were included in this study, all of them resident in Benghazi city and were had Libyan nationality. The data were subjected to statistical analysis to achieve a meaningful outcome; the results of the study are discussed in the following subsections.

5.1 Demographic profile

Regarding to participants age groups (Table 1), most of participants about two-third were aged from twenty years old to forty years old with (68%) of the total participants, this age group were constitute (35.8%) of the total population in Benghazi city according to the population survey (2012). This finding indicate that individuals who consumed fast foods in Benghazi city are mostly young, a typical example of the modern consumer who is open to new lifestyles and to the modern consumer culture .Other age groups, less than twenty years old and over forty years old constitute (28.5%) and (3.5%) respectively, the maximum age was 64 years while the minimum age was 13 years. Statistically there was a highly significant negative correlation between, the frequent of fast foods consumption and the age ($P < 0.05$ and

$r = - 0.384$) which support the previous finding that peoples less than forty years and smaller are the major consumers of fast foods in Benghazi city .

This result was close to the result of a study done in two cities in Morocco (Casablanca and Rabat) conducted amongst 146 individuals. They found that the dominant age group amongst the consumers of fast foods is the one between fifteen years old and thirty five years old (64.1%), while over thirty five years old and less than fifteen years old were (35.9%). (Goubraim and Chakor, 2015). In this context, a study in Eskisehir-Turkey covered 300 participants, shows that even more consumers at the age group from nineteen to forty years old (83.8 %), while (12.1%) were eighteen years old or less, and (4.1%) for over forty years old. (Yuncu et al., 2013). These findings come along with result of the present study, and revealed that fast foods restaurants are mostly preferred by people under forty years of age.

As shown in (Table 2), the majority of participants were male with (83.5%) while female constitute (16.5%). More than three-quarter of participants (76.5%) were single, while (23.3%) and (0.2%), were married, and widowed respectively. Statistically these results indicated that the gender and marital status significantly affects fast foods intakes among restaurants consumers in Benghazi city (P < 0.05,

r = 0.368, 0.289 respectively) and the frequency of consumption were higher among men than women and are most for single more than other marital status. The results of present study were disagreed with the finding of a study done in Malaysia, included 200 participants, were the male consist (53%), while female (47%) and regarding the participants marital status single were (63%), married (35.5%), divorced (1.5%). (Ying, 2016). However, our study results were in contrast with the finding of a cross-sectional study by random digit-dial telephone surveys done in Minnesota; USA, included 530 participants which revealed that the majority of participants were women (65.1%) while men consist (34.9%), and regarding the marital status in contrast to our study married were (70%), while Divorced/widowed/separated (14.3%), and Single (15.7%). (Dave, 2009). Furthermore, the results of a study done in Australia at the University of Toledo College of Arts and Sciences, among a total of 482 participants only (29.9 %) were male and (70.1 %) respondents are female. (Chakraborty, 2012). The disagreement between these studies and the finding of the present study could be due to the demographic and cultural differences and also it's noticed that the response rate was higher with female than male in these previous studies.

On other hand, approximately the halves of participants in the present study were students (50.3%), while employee (37.5%), unemployed (12%), and retired (0.2%) (Table 2). Participants who works (43.5%) was working from six to eight hours, more than eight hours(39.5%), and those working less than six hours (17%) (Figure 1). This results indicated that students and employees are the predominant categories regarding fast foods consumption in Benghazi city, which can be explained by the characteristics of these two categories whose constraints (studies and continuous work schedule). Statistically there was a highly significant positive correlation between the frequent of fast foods consumption and the number of working hours (P < 0.05, r = 0.209).

The present study results were agreed with the result of a similar study which included 114 participants done at local fast food outlets in Sweden, were the most of participants was students (40.8 %), while employed (49.5%) , unemployed (8.7%), and only (1%)

were retired. (Mammadli, 2016). In agreement with the present study results, a cross-sectional study included 1647 Singaporean adults; the data were obtained from Singapore National Nutrition Survey, the study reveal that the majority of participants were employees and student accounts (77.4%), while unemployed (15.2%), retired (5.7%) and other categories (1.7%). (Naidoo et al., 2017).

5.2 Fast food consumption patterns

5.2.1 Frequency of fast food consumption

More than two-third of the present study population (68.5%) were consumed fast foods three times and more per week, while (17%) consume fast foods at least once a week, and (14.5%) twice weekly as shown in (Table 3). In addition (63.5 %) of participants normally consume fast foods on a daily and weekly basis, while (28%) in holidays, (8.3) for celebration and only (0.2%) in vacation (Figure 2). These results indicated that most of participants in the present study consume fast foods on a daily basis, which can be explained by the nature of the vast majority of study population (87.8%) which was students and employee.

This result was quite consistent to a cross-sectional survey in Singapore, aimed to identify the socio-demographic determinants for eating out frequently at western fast-food restaurants and local eateries. Which revealed that, approximately (77.3 %) of participants usually ate out for at least one of the three main meals per day, while (22.7%) did not usually eat out for any of the three main eating occasions. (Naidoo et al., 2017). The similarity in the finding of this study with the result of present study could be due to that fact that the majority of participant in both studies were (students and employee).

However, the results of present study were in contrast with the finding of a similar study done in Adana, Turkey, involved 384 participants which aimed to investigate the relationship between consumers fast foods consumption frequency and their socioeconomic/demographic characteristics and attitudes. This study showed that in the total sample (45.3%) indicated that they never consumed fast food in last one month period, while (21.4%) ate fast food once or twice a month, (20.5%) consumed once a week and a surprisingly only (12.8%) consumed fast food on a daily basis. (Akbay, et al., 2007). The disagreement between this studies and the finding of present study could be due to the difference in way of data collection were the data applied in this study

were collected by the research team from households residing in urban area of Adana, Turkey by a face-to-face survey.

5.2.2 Time of fast food consumption

The most of participants in this study preferred to consume fast foods at dinner and lunch with (76%), while almost quarter (24%) preferred at breakfast, as shown in (Figure 3). In addition, in regard to the timing of meals (68.3%) of participants consume fast foods from two PM to ten PM, while (29.7%) before two PM, and only (2%) of participants consume fast foods after ten PM (Table 4). This result indicated that most of participants in the present study consume fast foods at dinner and lunch time, which could be due to the demographics of study sample.

This result were agreed with the finding of a similar study done at Mansoura University, Egypt included 908 students which revealed that lunch and dinner (77 %) were the most common timing of fast food meals consumption, while breakfast (15.1%) and snack between meals were (7.9%).(El-Gilany et al., 2016). Moreover, another study had done in Michigan, USA which covered 3279 participants were revealed that usual fast food meals eaten were at lunch and dinner time (86.1%), while breakfast accounts (13.1%) of participants. (Anderson et al., 2011).

5.2.3 Place of fast food consumption

Concerning the place of fast foods consumption , near the half of participants in this study (45%) preferred to dine at restaurant, while (41.2%) consume fast foods at home, and (13.8%) in their cars (Table 5). This result showed that there was increasing by number of participants preferred eating in fast food restaurants which indicate that meals eaten outside home especially in fast food restaurants are a growing consumption habits. In a comparable similar study done by Goubraim and Chakor, (2015), in Morocco, which almost agreed with the present study in the percent of participants whose preferred to consume fast foods at home (40.8%), while with lesser degree in the percent of participants whose preferred to consume fast foods at restaurant (28.9%), in addition the consumption at other places (30.3%) were higher to the result of present study. Another study disagree with our findings were done in Singapore had revealed that, Hawker centers were a popular dining venue with (61.1%). In contrast only (1.9%) of participants usually ate at fast-food restaurants. Workplace and school canteens were also common dining venues with (20.4%) of the participants typically eating at this

venue. (Naidoo et al., 2017). The disagreement between these studies and the finding of the present study could be due to the demographic and cultural differences.

5.2.4 Type of drinks consumed with fast foods

Present study shows that, around two third of participants (65%) preferred to consume carbonated beverage while eating fast foods, about the third of participants (28%) preferred natural fruit juice, (5%) water, and only (2%) drinking tea with fast foods (Figure 4). This result indicates that the vast majority of participants preferred to consume carbonated beverage with fast foods followed by natural fruit juice.

A similar study done at Mansoura University, Egypt, had agreed with present study result shown that carbonated beverages were the most frequently ordered drinks with fast foods (79.8%). (El-Gilany et al., 2016). Another studies done in Bangladesh to assess fast food preferences and food habits among students of private universities, had revealed that even more participants (96%) reported to have soft drinks with fast foods. (Bipasha and Goon, 2013).

5.3 Variables associated with fast foods consumption

Variables associated with fast foods consumption (Table 6) had shown that, Taste considered by the majority of participants (90.7%) having the greatest influent on their consumption, while (8%) disagreed on that and (1.3%) was neutral. Enjoy eating foods with family and friends comes in the second position in terms of influent on participants fast foods consumption with (78%) of participants agreed and strongly agreed on that, while(20%) disagreed and strongly disagreed on that and (2%) was neutral. Advertisement and Brand of fast food had a close influent on the participant consumption of fast foods, since (74.5% and 74.7%) of participants respectively confirm that, while (17.7% and 21.3%) respectively disagreed and strongly disagreed on that and (8% and 4%) respectively was neutral. Cost on other hand considered by about two- third of participants (66%) to have an influent on their consumption of fast foods, while (32%) disagreed and strongly disagreed on that and (2%) was neutral. The inability to prepare food along with the Moods had the lowest influent on the participant consumption of fast foods, since (53.8% and 54 %) of participants respectively agreed and strongly agreed on that, while (37% and 38%) respectively disagreed and strongly disagreed on that and (9.2% and 8%) respectively was neutral. In addition the majority

of participants (87.8%) visit fast food restaurants with their friends and family, while (12.2 %) visit fast food restaurants alone (Table 7). These results indicated that Taste of fast foods and Enjoy eating foods with family and friends are the main influent on consuming fast foods as revealed by majority of the participants followed by Advertisement, Brand, and cost of fast foods, while the least influent were the inability to prepare food and the Moods. Statistically there was a significant positive correlation between the frequent of fast food consumption and the taste of fast foods ($P < 0.05$, $r = 0.110$), while there is no significant correlation with other variables.

The results of present study were agreed with a study done in Kashmir, Pakistan included 80 participants, aimed to find out the prevalence of fast food intake among urban adolescent students. The study revealed that, taste is the main attraction for consuming fast foods as revealed by majority of the participants (75 %). (Vaida, 2013). Another study were done in Sweden, included 114 participants, aimed to investigate perception of the fast food, exploring consumer behavior, and determining key attributes to assess customer satisfaction level. This study were agreed with the present study and revealed that, the vast majority of consumers (67%) reported that their preference of particular restaurant visit was mostly influenced by their friends and family, while (13. 6%) have been influenced by advertising/media, and the rest of the participants were influenced by children (8.7%) and by other reasons (10.7%). (Mammadli, 2016).

5.4 Health and Nutrition issues

Regarding to the knowledge about the disease caused by excessive consumption of fast foods, more than half (59.8%) of participants was sometimes known about the disease caused by excessive fast foods consumption, around quarter (24%) were sure, and (16.2%) of participants never known (Table 8).

As shown in (Figure 5) approximately half of participants (48.2%) choose obesity as a disease caused by excessive consumption of fast foods, around quarter (24%) choose cardiovascular disease, (20.8 %) choose dislipidemia, and only (7%) for other disease. These results revealed that high percentages of participants perceived that excessive fast foods consumption can cause harm to general health, as well as the increased risk of obesity and non-communicable diseases.

The present study result agreed with a similar study included 908 students were done at Mansoura University, Egypt. which revealed that the majority of participants (94.3%)

stated that fast foods were hazardous to health, while (5.7%) stated that not hazardous to health, they considered obesity as the most frequent hazard of fast foods consumption (91.3%), followed by dyslipidemia, coronary heart disease and other disease (8.7%). (El-Gilany et al., 2016). Another cross sectional study were done at shopping malls restaurants in Kuwait, which included 499 consumers and agreed with the present study, had revealed that the great majority of consumers (94.2%) considered fast food harmful to health and only (5.8%) of consumers considered that fast food does not cause harm to health. Nearly two thirds of consumers believed that fast foods intake can cause obesity (73.2%), while (17%) not causing obesity and (9.8%) do not know that regular intake of fast foods cause obesity. (Musaiger, 2014). The similarity in the results of these studies with the result of present study could be due to that the similarities of study population characteristics and culture.

The present study shows that, about two third of the participants (63.7%) were sometimes known about the ingredients of fast foods, while more than quarter (25.5%) are sure about the ingredients of fast foods they eat and (10.8%) never know (Table 8). Three-quarters (75%) of the participants in this study choose protein as the biochemical component in fast foods that has positive effects on health, while (8%) for both carbohydrates and fats, (7%) chose more than one component and only (2%) of participants choose spices (Figure 6). While regarding the biochemical component in fast foods that has negative effects on health (Figure 7) more than half (52%) choose fats, (12%) for salts, more than one ingredient was chooses by (16%), for both condiments and carbohydrates (9%), and only (2%) of participants choose protein. These results indicate that most of participants in the current study either known or at least sometimes known about the ingredients in fast foods and the possibility of either positive or negative effects on health**.**
The results of a similar study included 200 participants were done at private universities in Bangladesh, which agreed with the result of present study, had revealed that approximately (80%) of participants knew about the ingredients that went into their fast food, while (20%) do not. In addition (95.6%) of participants were aware that fast food contains large amounts of fats and oils that associated with negative effects to health, while (4.4%) choose other ingredients. (Bipasha and Goon, 2013).

Figure (8) showed that, a remarkable percent (39%) of participants rarely give importance to the nutritive value of fast foods they consume, while around quarter (24%) most of time gave importance, (19%) sometimes, (12%) not at all, and only (6%) always give importance to the nutritive value of fast foods they consume.

In addition, more than half of participants (53.7%) considered fast foods medium in nutrients, while (23.5%) low in nutrients and (22.8%) said that fast foods are high in nutrients (Table 9). These results indicate that most of participants in the current study does not gave importance to nutritive value of fast foods they consume and the greater percent more than half considered fast foods medium in nutrients.

In a comparable study were done among college students in India, included 200 participants aged between 20 to 27 years, had revealed that more than half of participants (56.7%) considered fast foods minimal in nutrients, while (40.4%) said that fast foods medium in nutrients and only (2.9%) considered as high in nutrient content. (Goyal and Singh, 2007). However, the result of study among Michigan adults USA, which covered 3279 participants were disagreed with the present study, had showed that (70%) gave importance to nutritional information about menu items at the fast-food restaurants where they usually ate, (11%) reported that it was not available, and (19%) didn't know or never noticed whether it was available. (Anderson et al., 2011). The disagreement with the finding of the present study could be due that the American study had larger study population compared to the present study and the availability of nutritional information about menu items at the fast foods restaurants.

Most of the participants in current study (78.5%) considered fast foods high in calories, while (20.8%) said that its medium in the calories, and (0.7%) said that fast foods are low in calories (Table 9). This result indicates that the majority of participants considered fast foods as caloric dense foods.

Despite to their knowledge about the biochemical component, nutritive value, and calories in fast foods, also the diseases caused by excessive consumption of fast foods, the vast majority of participants in the present study continue to frequently consume such products. This may indicate that health information about fast foods not necessarily affects their consumption. Statistically there is no significant correlation (P > 0.05) between the health knowledge of the participants and frequently of fast foods consumption; this could be explained by the results of participants BMI, were more than half (53.5%) of participants are overweight, while (28%) are normal weights, and (18.5%) of participants was obese (Table 10). Statistically there was a highly significant

positive correlation between the frequent of fast foods consumption and BMI ($P < 0.05$, r = 0.309).These results indicated that the majority of participants in the current study were overweight and obese, while almost third of participants were normal in weight, also this study reveals a strong association between more frequent fast foods consumption and increased body mass index. One of the most important reasons regarding participants higher BMI could be due to that fact that, the majority of participants in this study (93%) do not follow any diet control program (Figure 9).

In a similar study were done in Spain, aimed to describe the association of fast food consumption with BMI, energy intake and diet quality had revealed that frequent of fast foods consumption was associated with higher energy intakes, poor diet quality and higher BMI. (Schroder et al., 2007). Another study were done in Michigan, show that the prevalence of obesity was increased consistently with frequenting fast-food restaurants. Obese were approximately 50% higher among those consuming fast foods two or more times per week compared with those consuming it less than once per week. (Anderson et al., 2011).

5.5 Comparisons between Modern and Traditional fast foods consumption

The current study shows that, about two third of participants(63%) preferred to consume both modern and traditional fast foods, while (22%) prefer modern fast foods, and (15%) traditional fast foods only (Figure 10) . This result indicated that the vast majority of participants visit both modern and traditional fast food restaurants.

 In a similar study agreed with present study done in Morocco, indicated that the majority of respondents (84.5%) prefer branded fast food restaurants and traditional fast food restaurants, while (11.3%) not response and few of respondents (4.2%) reported not having any preference for a type of fast food restaurants over the other. (Goubraim and Chakor, 2015). In contrast, a study were done in Singapore/ Malaysia, have revealed that the median frequency of eating at local fast food restaurants was (five times) per week, whilst the median frequency of eating at Western fast food restaurants was (one times) per week. (Naidoo et al., 2017). The disagreement between this studies and the finding of the present study could be due to the fact that traditional fast food restaurants offer good value for money and provide a variety of products also'Halal' status has been indicated as one of the most important factor for the Muslim consumers in Singapore.

As shown in (Tables 11, 12) the most preferred modern fast food sandwiches by the participants were Beef Burger followed by Chicken Shawrma, Banneh, and Chicken Burger, while Pizza and Fried chicken was the most preferred modern fast food meals. On other hand among the traditional fast foods, the most preferred sandwiches were Mshakal (mixed Haraime and Foul), Haraime, and Fasolia (White beans), followed by Mshakal (mixed falafel and potatoes), while (Falafel and Glaya) were the most preferred traditional fast food meals (Tables 13, 14). These results indicated that among modern fast foods sandwiches and meals most of participants preferred Chicken based products (49%) followed by Meat based products (26%), and (25%) for Pizza and others, while Beans based products were the most preferred among the traditional fast foods (48 %) followed by Meat based products (42%), and (10%) for Mixed meat and beans.

A considerably comparable similar study were agreed with present study conducted in Malaysia, were the respondents have been asked to rank ten most preferable western fast foods, they found that chicken based fast foods is the most preferable among the

participants, followed by meat based fast foods and Pizza. (Habib et al., 2011). Another study were done in morocco have revealed that, amongst the branded fast food restaurants, meat based fast food is the most frequented one, followed by Pizza and chicken based fast foods. (Goubraim and Chakor, 2015).

5.6 By weight analysis of fast foods samples (Sandwiches)

Since the majority of participants, over ninety percent preferred sandwiches over meals in both modern and traditional fast foods (Figure 11, 12). Hence the By-weight analysis of fast food samples included the top five types of sandwiches which participants mostly preferred for each modern and traditional fast food (Tables 11, 13).

As shows in (Table15) in concern to the total samples weight, Fasolia (white beans) sandwiches were the heavier by the median weight (141.6±39.29 g), Haraime sandwiches were the lighter by the median weight (95±4.52 g) among traditional fast foods. While among modern fast food samples, Beef Burger sandwiches were the heavier by the median weight (252.6±23.34 g) and Chicken Shawrma sandwiches were the lighter in median weight (137.6±4.61 g) (Table16). These results showed that in terms of serving size modern fast food samples were larger in total sample weight than traditional fast foods. This could be explained by the fact that most of modern fast food samples contain more ingredients than traditional fast food samples in each food sample ingredients categories. In modern fast food samples Beef Burger sandwiches were the heavier by the median weight, it constitute of (meat/beef, egg, cheese, bread, salads, catchup and mayonnaise) which account (35.1%, 18.8%, 4.6%, 33.2%, 3.8%, 1.9%, and 2.6%) respectively from the total median weight. While in traditional fast food samples, Fasolia (white beans) sandwiches were the heavier by the median weight, it only constitute of (bread and white beans) that account (72% and 28 %) respectively from the total median weight of samples.

Regarding to the macronutrient content (Table 17) among the modern fast food sandwiches, Kebab was the highest in the average carbohydrate content (50.2 ± 2.7 g /100 g), while the lowest were Beef burger (32.7 ± 3.6 g /100 g). In addition Beef burger were the highest in terms of average protein content (27.7 ± 3.1 g /100 g), while Kebab had the lowest protein content (18.6 ± 1.2 g /100 g). The highest average fat content was for Beef burger (27.1 ± 3.8 g /100 g), while the lowest was Chicken Shawrma sandwiches (12.4 ± 0.3 g /100 g). Among traditional fast food sandwiches, Mshakal (Falafel and Potatoes) were the highest in the average carbohydrate content (63.4 ± 2.9 g /100 g), while the lowest was Haraime (40 ± 2.3 g /100 g). The highest average protein content was for white beans (14.6 ± 2.9 g /100 g), while Mshakal (Falafel and Potatoes) had the lowest average protein content (10.8 ± 0.9 g /100 g). Finally the highest average fat content (12.2 ± 1.2 g /100 g) was for Mshakal (Falafel and Potatoes), while the lowest (3.3 ± 0.2 g /100 g) for Mshakal (Haraime and Foul) sandwiches. Statistically there was a significant difference (P < 0.05) among modern and traditional fast food sandwiches in terms of average carbohydrate, protein and fat content per 100g.

The percentages of the average carbohydrate, protein, fat among modern fast food samples per 100g were (36.28%, 21.98% and 21.28%) respectively, while among traditional fast food samples was (48.44%, 12.58% and 5.72%). These results indicated that modern fast food samples were higher than traditional fast food samples in terms of average protein and fat content per 100g of food sample. There was a significant statistical difference between modern and traditional fast food samples in terms of average protein and fat content (P value=0.01 and 0.03 respectively), while there was no significant difference (P value = 0.57) in terms of carbohydrate content .

As shown in (Table 18) the Beef Burger was the highest in the average calories content among modern fast food samples (490.2 ± 56.1 kcal/100 g), while the lowest was for Chicken Shawrma (273.9 ± 10.6 kcal/100 g). In addition Mshakal (Haraime and Foul) sandwiches were the lowest in terms of caloric content (249.6±8.4 kcal/100 g) while Mshakal (Falafel and Potatoes) had the highest caloric content (366.3±25.7 kcal/100 g) among traditional fast food sandwiches. Statistically there was a highly significant difference (P < 0.05) among modern and traditional fast food sandwiches in terms of average caloric content per 100g.

As a Subsequent to the higher content of average protein, fat and in addition to heavier average total samples weight, there was a significant differences (P < 0.05) between modern fast food samples and traditional fast food samples in terms of average caloric content per 100g, which indicated that modern fast food samples are higher in total caloric content than traditional fast food samples which mainly comes from high fat content.

In a considerable comparable similar study were done in Nigeria, agreed with the results of present study. Aimed to quantify the proximate, mineral and cholesterol concentrations of four commonly consumed local fast foods. This study revealed that, the energy content of fast foods ranged between (279.06 Kcal to 419.77Kcal per 100gram). This study has established that fast foods are concentrated sources of energy, low in fiber, poor sources of essential minerals and high in dietary cholesterol. (Oyawoye, 2012). Another study were done in India evaluating fast foods salt, total carbohydrates, total fat and Tran's fat content, had indicated that fast foods contain high levels of sugars, salt and Tran's fats. High levels of Tran's fats are a public health concern due to its association with chronic heart diseases. (Johnson-

et al., 2012). In Egypt, a study was directed to investigate the chemical composition, microbiological quality and biological evaluation of some fast food meals, had revealed that the calories provided from 100g dry sample were ranged from 545.65 to 589.77. This study has indicated that fast foods are concentrated sources of energy and low in fiber. (Al-Daghri, 2012).

6. Conclusion

The fast food consumption pattern, the widespread of this phenomenon among consumers in Benghazi city can be summed up at many levels.

On demographic level: this new mode of consumption that imposed by the demands of modern life and the spread of modern consumer culture are mostly preferred by young people especially those under forty years of age, higher among men than women, and predominant for students and employees. Those people constitute more than third of the total population in the city which could reflect the intensity of this phenomenon.

On the level of consumption: the study indicated that most of participants consume fast foods on a daily basis, especially at dinner and lunch time and in fast food restaurants. They preferred both modern and traditional fast food restaurants. Chicken based products were the most preferred among modern fast foods, while beans based products were most preferred among the traditional fast foods. Taste of fast foods and Enjoy eating foods with family and friends were the main influential factors on the participants fast foods consumption.

On the health and nutritional level: regardless to the participants knowledge about fast food ingredients, the harm which can caused to general health by excessive fast foods consumption, the increased risk of obesity and non-communicable diseases, they continue to consume such products. The majority of participants were overweight and obese; the current study reveals a strong positive association between the frequency of fast foods consumption and increased body mass index.

Finally: The By-weight analysis of fast food samples in this study indicated that modern fast food samples are higher in terms of total caloric content than traditional fast food samples, which mainly comes from high fat content and reveals that fast foods are concentrated sources of energy, and having little nutritional value. It's simply means "empty caloric foods".

7. Recommendation

1- Nutritional educational programs aimed to improving people nutritional knowledge (encourage increasing consumption of vegetables and fruits and avoiding food items that contain high fat content such as fast foods).

2- Activation of the food analysis labs to analyze fast foods regarding to its content (macro and micro nutrients) to evaluate its nutritive value.

3- Future work, focusing and modification of traditional fast foods may needed, which could be considered as a substitute to modern fast foods.

4- Further research work to study the Socio- demographic characteristics and Life-style factors and the impact of fast foods consumption on health should be performed in future.

8. Limitations

1- Lack of specification in fast foods preparation either in weigh or ingredients among fast food restaurants.

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10.1 Appendix (A):

السمح الوطني للسكان 2012

توزيع الأسر الليبية والعائلات المقيمة والوافدة ومتوسط حجم الأسرة حسب المناطق

Distribution of Libyan & Non-Libyan Households & Average Size of Household by Regions

Table(1)   جدول (1)

Region المنطقة	Libyan Household أسرة ليبية				Non-Libyan Houshold أسرة غير ليبية				Total المجموع			
	Number of Household عدد الأسر	Number of Families عدد العائلات	Number of Iudividuals عدد الأفراد	Averagesize of Household متوسط حجم الأسرة	Number of Household عدد الأسر	Number of Families عدد العائلات	Number of Iudividuals عدد الأفراد	Averagesize of Household متوسط حجم الأسرة	Number of Household عدد الأسر	Number of Families عدد العائلات	Number of Iudividuals عدد الأفراد	Averagesize of Household متوسط حجم الأسرة
Tobruk	25346	31120	158826	6.27	1352	1441	5684	4.2	26698	32561	164510	6.16
Derna	30324	32616	160403	5.29	944	1028	4037	4.28	31268	33644	164440	5.26
ALGabal ALAkhder	36473	40161	202049	5.54	1803	1924	7929	4.4	38276	42085	209978	5.49
Almarj	30896	36215	187692	6.07	435	478	2309	5.31	31331	36693	190001	6.06
Benghazi	101781	108602	544688	5.35	3600	3885	17379	4.83	105381	112487	562067	5.33
Alwahat	5547	5848	31826	5.74	1188	1215	3023	2.54	6735	7063	34849	5.17
ALkufra	5309	5569	34754	6.55	198	205	561	2.83	5507	5774	35315	6.41
Sirt	18552	20204	114626	6.18	734	766	2847	3.88	19286	20970	117473	6.09
Aljofra	7225	7545	41482	5.74	277	292	1229	4.44	7502	7837	42711	5.69
Misrata	84820	89248	487693	5.75	3891	4027	14920	3.83	88711	93275	502613	5.67
Almergheb	80226	84746	442225	5.51	1636	1667	6035	3.69	81862	86413	448260	5.48
Tripoli	176866	184778	890784	5.04	12435	12904	49869	4.01	189301	197682	940653	4.97

توزيع إجمالي السكان(الليبيين وغير الليبيين) حسب المنطقة وفئات العمر والجنس

Distribution of Population(Libyan &Non_Libyan) By Region,Age Group And Sex

جدول (6.1)

Table(6.1)

Age Group & Sex / فئات العمر والجنس

region المنطقة	4-0 ذكور Male	4-0 إناث Female	4-0 المجموع Total	9-5 ذكور Male	9-5 إناث Female	9-5 المجموع Total	14-10 ذكور Male	14-10 إناث Female	14-10 المجموع Total	19-15 ذكور Male	19-15 إناث Female	19-15 المجموع Total	24-20 ذكور Male	24-20 إناث Female	24-20 المجموع Total	29-25 ذكور Male	29-25 إناث Female	29-25 المجموع Total
طبرق Tobruk	11597	10973	22570	9961	9515	19476	7690	7460	15150	7675	7255	14930	8319	7402	15721	8128	7189	15317
درنة DERNA	11489	11009	22498	9433	8814	18247	7887	7588	15475	7839	7637	15476	7853	7360	15213	7169	6957	14126
الجبل الاخضر ALGabal AL Akhder	14540	13826	28366	11784	11355	23139	9761	9439	19200	9883	9429	19312	10152	9080	19232	9704	8862	18566
المرج Almarj	13350	12546	25896	10369	9670	20039	8751	8562	17313	9214	8746	17960	9403	8952	18355	8763	8555	17318
بنغازي Benghazi	31865	29929	61794	28960	27389	56349	25383	23908	49291	26546	25406	51952	28229	26667	54896	25931	24147	50078
الواحات Alwahat	2074	2018	4092	1763	1748	3511	1465	1487	2952	1544	1417	2961	1845	1557	3402	2064	1652	3716
الكفرة Alkufra	2122	1866	3988	1850	1838	3688	1771	1809	3580	1880	1800	3680	2038	1942	3980	1906	1864	3770

المسح الوطني للسكان 2012

توزيع إجمالي السكان(الليبيين وغير الليبيين)حسب المنطقة وفئات العمر والجنس

Distribution of Population(Libyan &Non_Libyan) By Region,Age Group And Sex

جدول (6.2)

Table(6.2)

الفئات العــمـريــة والجـنـس — Age Group & Sex

| المنطقة region	34-30 ذكور Male	34-30 إناث Female	34-30 المجموع Total	39-35 ذكور Male	39-35 إناث Female	39-35 المجموع Total	44-40 ذكور Male	44-40 إناث Female	44-40 المجموع Total	49-45 ذكور Male	49-45 إناث Female	49-45 المجموع Total	54-50 ذكور Male	54-50 إناث Female	54-50 المجموع Total	59-55 ذكور Male	59-55 إناث Female	59-55 المجموع Total
طبرق Tobruk	7234	6919	14153	6221	6531	12752	4910	5065	9975	3324	3400	6724	2680	2450	5130	1694	1754	3448
درنة DERNA	6850	6792	13642	6107	6178	12285	4902	5279	10181	3528	3866	7394	2802	2988	5790	1626	2015	3641
الجبل الأخضر ALGabal AL Akhder	9155	8804	17959	8173	8522	16695	6929	6839	13768	4903	5243	10146	3292	3410	6702	1890	2079	3969
المرج Almarj	8280	8521	16801	7380	7714	15094	5527	6216	11743	3988	4411	8399	2851	2966	5817	1558	1988	3546
بنغازي Benghazi	25564	24190	49754	23072	23795	46867	18957	19937	38894	14228	14733	28961	10588	10517	21105	7097	7741	14838
الواحات Alwahat	1880	1625	3505	1476	1352	2828	1266	1110	2376	799	810	1609	687	532	1219	361	295	656
الكفرة Alkufra	1496	1557	3053	1170	1296	2466	955	1054	2009	677	791	1468	519	533	1052	302	359	661

61

المسح الوطني للسكان   2012

توزيع إجمالي السكان(الليبيين و غير الليبيين)حسب المنطقة وفئات العمر والجنس

Distribution of Population(Libyan &Non_Lithyan) By Region,Age Group And Sex

جدول (6.3)

Table(6.3)

المنطقة region	64-60 ذكور Male	64-60 إناث Female	64-60 المجموع Total	69-56 ذكور Male	69-56 إناث Female	69-56 المجموع Total	74-70 ذكور Male	74-70 إناث Female	74-70 المجموع Total	75 + ذكور Male	75 + إناث Female	75 + المجموع Total	Unknown غير مبين ذكور Male	Unknown إناث Female	Unknown المجموع Total	Totel المجموع ذكور Male	Totel إناث Female	Totel المجموع Total
Tobruk طبرق	1540	1794	3334	1172	1194	2366	762	653	1415	902	1147	2049	0	0	0	83809	80701	164510
DERNA درنة	1914	1889	3803	1410	1334	2744	1100	735	1835	970	1120	2090	0	0	0	82879	81561	164440
الجبل الأخضر ALGabal AL Akhder	2112	2376	4488	1736	1586	3322	1382	1073	2455	1124	1535	2659	0	0	0	106520	103458	209978
المرج Almarj	1812	2118	3930	1446	1469	2915	1167	1025	2192	1250	1433	2683	0	0	0	95109	94892	190001
بنغازي Benghazi	6609	7034	13643	4991	4527	9518	3769	2848	6617	4051	3459	7510	0	0	0	285840	276227	562067
الواحات Alwahat	313	353	666	196	242	438	221	169	390	292	236	528	0	0	0	18246	16603	34849
الكفرة Alkuffra	285	382	667	219	214	433	226	136	362	286	172	458	0	0	0	17702	17613	35315

10.2 Appendix (B):

الحدود الادارية لأحياء بلدية بنغازي
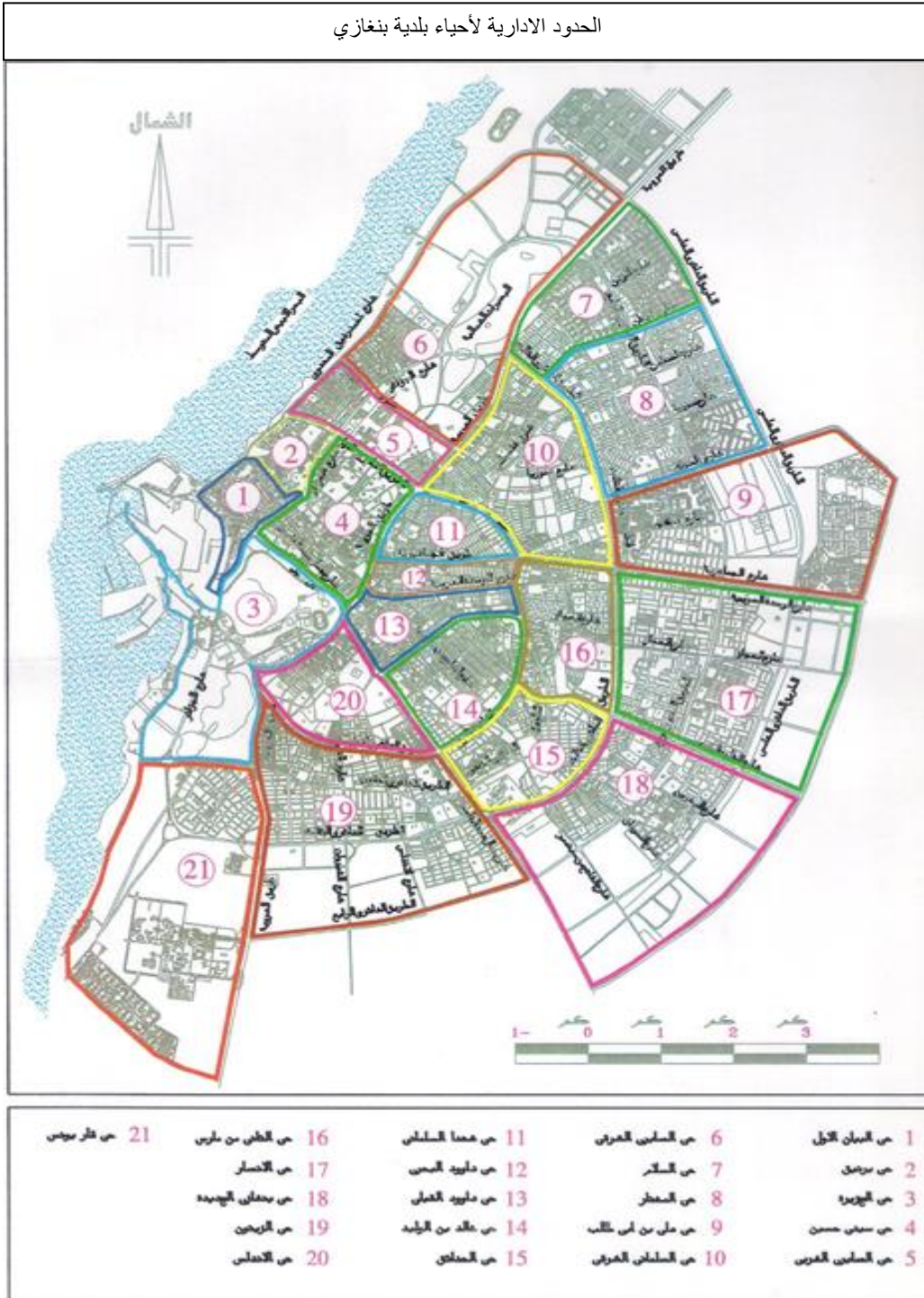
10.3 Appendix (C):

<div dir="rtl">

استبيان لاستهلاك الوجبات السريعة بمدينة بنغازي

1– العمر : [＿＿＿＿]　　2– الجنس : ☐ ذكر　　☐ انثى

3 – السكن: ☐ بنغازي　☐ خارج بنغازي

4– الجنسية: ☐ ليبي　☐غير ليبي

5– الحالة الاجتماعية: ☐ أعزب　☐ متزوج　☐ مطلق　☐ أرمل

6– المهنة: ☐ طالب　☐ موظف　☐غير موظف　☐متقاعد　☐ أعمال حرة

7– عدد ساعات العمل: ☐ اقل من 6 ساعات　☐ من 6 – 8 ساعة　☐ اكتر من 8 ساعات

☐ لا يعمل

8– عدد مرات تناول الوجبات السريعة (بالأسبوع):

☐ مرة واحدة　☐ مرتان　☐ 3 مرات　☐اكتر من 4 مرات

9– في أي وجبه من اليوم تفضل هذا النوع من الاكل: ☐الإفطار　☐ الغذاء　☐ العشاء

10 – ما هو الوقت من اليوم الذى تتناول فيه الوجبات السريعة:

☐ قبل الساعة 11 ص　☐ بين الساعة 11 و 2 م　☐ بين الساعة 2 و 6 م

☐بين الساعة 6 و10 م　☐ بعد الساعة 10م

11– برأيك هل للدعاية تأثير على استهلاكك الوجبات السريعة: ☐ نعم　☐ لا

في حالة الاجابة بنعم هل له ...

تأثير قوى ☐　مؤثرة ☐　لا اعلم ☐　غير مؤثرة ☐　غير مؤثرة على الإطلاق ☐

</div>

12- برأيك هل للاستمتاع بالطعم تأثير على استهلاكك الوجبات السريعة: ☐ نعم   ☐ لا

في حالة الاجابة بنعم هل له ...

☐ تأثير قوى   ☐ مؤثر   ☐ لا اعلم   ☐غير مؤثر   ☐غير مؤثر على الإطلاق

13- برأيك هل لعدم القدرة على اعداد الطعام تأثير على استهلاكك الوجبات السريعة:

☐ نعم   ☐ لا

في حالة الاجابة بنعم هل له ...

☐ تأثير قوى   ☐مؤثر   ☐ لا اعلم   ☐ غير مؤثر   ☐ غير مؤثر على الاطلاق

14- برأيك هل لتكلفة او سعر الوجبات السريعة تأثير على استهلاكك لها: ☐ نعم   ☐ لا

في حالة الاجابة بنعم هل له ...

☐ تأثير قوى   ☐مؤثر   ☐ لا اعلم   ☐غير مؤثر   ☐غير مؤثر على الاطلاق

15- برأيك هل الاستمتاع بالأكل مع العائلة والأصدقاء تأثير على استهلاكك للوجبات السريعة: ☐

نعم   ☐ لا

في حالة الاجابة بنعم هل له ...

☐ تأثير قوى   ☐ مؤثر   ☐لا اعلم   ☐غير مؤثر   ☐غير مؤثر على الإطلاق

16- هل لماركة أو نوع الطعام السريع تأثير على اختيارك لها: ☐ نعم   ☐ لا

في حالة الاجابة بنعم هل له ...

☐ تأثير قوى   ☐مؤثر   ☐لا اعلم   ☐غير مؤثر   ☐غير مؤثر على الإطلاق

17 – متى آخر مرة قمت فيها بزيارة لمطاعم الوجبات السريعة:

☐هذا الأسبوع   ☐ الأسبوع الماضي   ☐الشهر الماضي

18 – هل ترددك على المطاعم يشكل: ☐ يومي ☐ أسبوعي ☐ بالمناسبات ☐ بالأعياد

☐ بالعطلات

19 – هل تفضل الوجبات السريعة: ☐ التقليدية ☐ العصرية (الحديثة) ☐ كلاهما

20- من الاطعمة السريعة (الحديثة): هل تفضل: ☐ السندويتشات او ☐ الوجبات

21 – أي من السندويتشات الاتية ترغب في استهلاكها بالزيارة القادمة:

☐ البرجر(لحم) ☐ البرجر(دجاج) ☐ بانيه ☐ شاورما(لحم) ☐ شاورما(دجاج) ☐

الكباب ☐الشيش ☐ طابونه غيرها اذكرها........

22 – أي من الوجبات الاتية ترغب في استهلاكها بالزيارة القادمة:

☐ بيتزا ☐ وجبة شاورما(لحم) ☐وجبة شاورما(دجاج) ☐ دجاج قطع مقلى ☐ وجبة

مشويات غيرها اذكرها ....

23- من الأطعمة السريعة (التقليدية): هل تفضل: ☐ السندويتشات او ☐ الوجبات

24 – أي من الساندويتشات الاتية ترغب في استهلاكها بالزيارة القادمة

☐فاصوليا ☐فول ☐حرايمي ☐ مشكل (فول وحرايمي) ☐قلايا ☐كبدة بقرى

☐كبدة دجاج ☐ تن ودحى ☐مفروم ☐فلافل ☐ مشكل (فلافل وبطاطا)

غيرها اذكرها ....

25 – أي من الوجبات الاتية ترغب في استهلاكها بالزيارة القادمة

☐ وجبة فلافل ☐ وجبة فاصوليا ☐ وجبة مفروم ☐ وجبة قلايا غيرها اذكرها ....

26- ما هو نوع المشروبات التي تطلبها عادة مع الوجبات السريعة:

☐ الماء فقط ☐مشروب غازي ☐ شاي ☐ قهوة ☐عصائر طبيعية

☐غيرها اذكرها ....

27- هل انت على علم بمكونات الوجبات السريعة التي تستهلكها: ☐ أبدا ☐ بعض الأحيان

☐ بالتأكيد

28- هل أنت على علم بالأمراض التي يسببها استهلاك الوجبات السريعة:

☐أبدا ☐ بعض الأحيان ☐ بالتأكيد

29- برأيك هل للقيمة الغذائية للوجبة السريعة تأثير على اختيارك لها :

☐ تأثير قوى ☐ مؤثر ☐لا اعلم ☐غير مؤثر ☐غير مؤثر على الإطلاق

30- هل تتبع حمية غذائية معينة: ☐ نعم ☐ لا

31 - برأيك هل تناول الاطعمة السريعة يزود الجسم ب :

☐ سعرات حرارية عالية ☐ سعرات حرارية متوسطة ☐ سعرات حرارية منخفضة

32 - برأيك هل تناول الاطعمة السريعة يزود الجسم بمواد مغذية بنسبة:

☐ عالية ☐ متوسطة ☐ منخفضة

33 - برأيك أي من مكونات الوجبة الغذائية الاتية تعتقد ان لها تأثير (إيجابي) على جسمك /
صحتك (بالإمكان اختيار أكثر من إجابة):

☐البروتينات ☐الدهون ☐النشويات ☐الاملاح ☐التوابل

34 - برأيك أي من مكونات الوجبة الغذائية الاتية تعتقد ان لها تأثير (سلبى) على جسمك /
صحتك (بالإمكان اختيار أكثر من إجابة):

☐البروتينات ☐الدهون ☐النشويات ☐الاملاح ☐التوابل

35 - هل تقوم بتناول الاطعمة السريعة (وجبات او سندويتشات) في: ☐المطعم ☐ السيارة

☐ بالبيت

36 - هل تقوم عادة بزيارة المطعم مع: ☐ الأصدقاء ☐العائلة ☐بمفردك

37 – برأيك هل تناول الوجبة السريعة يعتمد على المزاج الشخصي (سعيد، حزين، غضبان،

مرهق):

☐ اتفق تماما ☐ اتفق ☐ لا ادرى ☐ ليس لها علاقة ☐ ليس لها علاقة اطلاقا

38– من الامراض التالية من منها باعتقادك يسببه الاستهلاك المتكرر للوجبات السريعة:

☐ أمراض القلب ☐ السمنة ☐ دهون الدم ☐ تكيس المبايض ☐ اضطرابات النوم ☐

التهاب المفاصل ☐ تلف الكبد ☐ الجلطة

39– هل أنت على علم بان الاستهلاك المتكرر للوجبات السريعة يسبب السمنة: ☐ نعم ☐ لا

40– القياسات الأنثروبومترية:

الطول: ....

الوزن: ....

68

Questioners of fast foods consumption in Benghazi city

1- Age: [____]

2- Gender: ☐ Male   ☐ Female

3- Residence: ☐ from Benghazi city   ☐ out of Benghazi city

4- Nationality: ☐ Libyan ☐Other

5- Marital status: ☐ Single ☐ Married ☐ Divorced ☐ Widowed

6- Profession: ☐ Student ☐ Employee ☐ Retired ☐ Unemployed ☐ Freelancers

7- Working hours: ☐ Less than 6 hours ☐ From 6-8 hours ☐ more than 8 hours
☐ does not work

8- Number of fast food consumption (week):
☐ Once   ☐ 2 times   ☐3 times   ☐ More than 4 times

9- At any meal of the day you prefer this type of foods: ☐ Breakfast   ☐ Lunch   ☐ Dinner

10- At what time of that day you eat fast food:
☐ Before 11 AM ☐Between 11 AM and 2 PM   ☐Between 2 PM and 6 PM ☐ Between 6 AM and 10 PM   ☐ After 10 PM

11- Do you think advertising has an impact on your fast food consumption:
☐ Yes   ☐ No   If yes, does it have...
☐Strong influence ☐ Influential ☐ Neutral ☐ Not effective
☐ Not effective at all

12- Do you think that the taste of fast foods effect on your consumption:
☐ Yes   ☐ No   If yes, does it have...
Strong influence ☐ Influential ☐ Neutral ☐ Not effective
☐ Not effective at all

13- Do you think the inability to prepare food has an impact on your fast food consumption:
☐ Yes   ☐ No   If yes, does it have...
☐Strong influence ☐ Influential ☐ Neutral ☐ Not effective
☐ Not effective at all

14- In your opinion, does the cost or price of fast food affect your consumption:
☐ Yes ☐ No   If yes, does it have ...
☐Strong influence ☐ Influential ☐ Neutral ☐ Not effective
☐ Not effective at all

15- Do you think enjoy eating with family and friends will affect your fast food consumption :

☐ Yes ☐ No   If yes, does it have...

☐Strong influence ☐ Influential ☐ Neutral ☐ Not effective

☐ Not effective at all

16- Does the brand of fast food affect your choice: ☐ Yes ☐ No

If yes, does it have ...

☐Strong influence ☐ Influential ☐ Neutral ☐ Not effective

☐ Not effective at all

17- When you're last time visited fast food restaurants:

☐ This week   ☐ Last week   ☐ Last month

18- Do you visit fast food restaurants: ☐Daily ☐Weekly ☐Vacation ☐Holidays ☐Celebration

19- Do you prefer: ☐ Traditional fast food   ☐ Modern fast food   ☐ Both

20- Regarding (Modern) fast foods: Do you prefer: ☐ Sandwiches or   ☐ Meals

21- Which of the following sandwiches do you wish to consume for the next visit:

☐Beef Burger ☐Chicken Burger ☐ Banneh ☐Chicken Shawrma

☐Beef Shawrma ☐ Kebab ☐Sheesh ☐Tabona ☐ Other ………..........

22- Which of the following meals you would like to consume for the next visit:

☐Pizza ☐Chicken Shawrma meal ☐Beef Shawrma meal ☐ Fried chicken ☐ Barbecue meal ☐ Other ………..........

23- Regarding (Traditional) fast foods do you prefer: ☐ Sandwiches or ☐ Meals

24- Which of the following sandwiches would you like to consume for the next visit:

☐ Fasolia ☐Foul ☐Haraime ☐Glaya ☐Chicken Liver ☐ Beef Liver

☐ Tuna and egg ☐Mafroom ☐Falafel ☐Mshakal (falafel and potatoes)

☐Mshakal (Haraime and Foul) ☐ Other ………..........

25- Which of these meals would you like to consume for your next visit:

☐Falafel meal ☐ Fasolia meal ☐Mafroom meal ☐Glaya meal

☐ Other ………..........

26- What type of drinks do you normally consume with fast foods:

☐ Water only ☐Carbonated beverage ☐Tea ☐Coffee ☐Natural fruit juice

☐ Other ....

27- Are you aware of the ingredients in fast foods you consume:

☐ Never ☐ Sometimes ☐ Sure

28- Are you aware of the diseases caused by fast foods consumption:

☐ Never   ☐ Sometimes   ☐ Sure

29- In your opinion, does the nutritional value of the fast meal affect your choice: ☐ Strong impact ☐ Influential ☐ Never know ☐ Effective

☐ Not effective at all

30- Do you follow any diet control program: ☐ Yes   ☐ No

31- Do you think eating fast food provides the body with:

☐ High calories   ☐ Medium calories   ☐ Low calories

32- Do you think that fast foods:

☐ High in nutrients   ☐ Medium in nutrients   ☐ Low in nutrients

33- In your opinion, which of the following ingredients do you think has a positive effect on your body / health (more than one answer can be chosen):

☐ Proteins   ☐ Fats   ☐ Carbohydrates   ☐ Salts   ☐ Spices

34- In your opinion, which of the following meal ingredients do you think has a negative effect on your body / health (more than one answer can be chosen):

☐ Proteins   ☐ Fats   ☐ Carbohydrates   ☐ Salts   ☐ Spices

35- Do you eat fast foods (meals or sandwiches) in:

☐ Restaurant   ☐ Car   ☐ At Home

36- Do you usually visit the restaurant with: ☐ Friends ☐ Family ☐Alone

37- Do you think eating fast food depends on personal mood (happy, sad, angry, tired): ☐Strong influence ☐ Influential ☐ Neutral ☐ Not effective

☐ Not effective at all

38- Which of the following diseases you believe that is caused by frequent consumption of fast foods:

☐ Heart disease ☐ Obesity ☐ Dyslipidemia ☐ Polycystic ovaries

☐ Sleep disorders ☐ Arthritis ☐ Liver damage ☐ Stroke

39- Are you aware that the increased frequently of fast food consumption causes obesity: ☐ Yes   ☐ No

40- Anthropometric:

Length:

Weight:

10.4 Appendix (D):

Anthropometric measurements:

Weight	Kg
Height	Cm
BMI	Kg/m²

BMI Classification according (WHO 2000):

BMI	Classification
< 18.5	Underweight
18.5 – 24.9	Normal weight
25.0 – 29.9	Over weight
30.0 – 34.9	Class I Obesity
35.0 – 39.9	Class II Obesity
40.0≥	Class III Obesity

10.5 Appendix (E):

Description of fast food samples ingredients

Fast foods	Description of ingredients
Modern sandwiches	
Burger beef	A flat slice made from ground (minced) beef seasoned with salt, pepper and herbs and added Cheese, Fried egg, Lettuce, Tomato, Catchup and Mayonnaise in a Burger bread.
Burger chicken	A slice of grounded Chicken meat with salt, pepper, and herbs, and added Cheese, Fried egg, Lettuce, Tomato, Catchup and Mayonnaise in a Burger bread.
Shawrma chicken	(Grilled chicken meat) consisting of meat packed into a cylindrical mass and grilled on a vertical rotating spit, with slices of tomato and chopped lettuce, Catchup and Mayonnaise in sandwiches of Bori bread.
Banneh	A slice of deeply fried chicken breast seasoned with salt, pepper, garlic, onion, and covered by egg, flour and mashed bread, added Cheese, Lettuce, Tomato, Catchup, Mayonnaise in a Burger bread.
Kebab	Small pieces of Roast meat beef rubbed with salt, pepper and roasted on skewer, and added Salads (Rocca) in sandwiches of Wheat bread.
Traditional sandwiches	
Fasolia (White beans)	Boiled white beans with Tomato sauce, Onion, Garlic, seasoned with Chili pepper, Black pepper, Salt, Spices, Cumin, Seeder, in sandwiches of Wheat bread.
Haraime	Canned tuna or sardine with Tomato sauce and juice, Onion, Garlic, Seasoned with Chili pepper, Black pepper, Salt, Spices, Cumin, Seeder, and added Lemon juice, in sandwiches of Wheat bread.
Tuna and egg	Canned tuna meat, Fried egg, in sandwiches of Wheat bread.
Mshakal (mixed falafel and potatoes)	Falafel (small deep fried broad beans or chickpeas. Herbs, spices, and onion), with French fries, and slices of tomato and chopped lettuce, in sandwiches of white Shami bread.
Mshakal mixed Haraime and foul (filled beans)	Foul (boiled filled beans with onion, tomato sauce, seasoned with Black pepper, salt, spices, Garlic, and mixed with Haraime as above in sandwiches of Wheat bread.

10.6 Appendix (F):

The correlation between the frequent of fast food consumption and other variables

Correlation		Frequency of fast food consumption
Age	Pearson Correlation	0.384
	P value	0.000
gender	Pearson Correlation	0.368
	P value	0.000
Marital status	Pearson Correlation	0.289
	P value	0.000
Number of working hours	Pearson Correlation	0.209
	P value	0.000
Taste	Pearson Correlation	0.110
	P value	0.028
BMI	Pearson Correlation	.309
	P value	.000

استهلاك الوجبات السريعة في مدينة بنغازي

اعداد

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الخلاصة :

لأهمية دراسة استهلاك الأطعمة السريعة لما لها من تأثير على النمط الغذائي في المجتمع الليبي، هدفت هذه الدراسة الى تحديد مدى تعدد استهلاك الأطعمة السريعة في مدينة بنغازي مع الاهتمام بالعوامل المؤثرة في الاستهلاك، والمقارنة بين الأطعمة السريعة العصرية(الحديثة) والأطعمة السريعة التقليدية من حيث الاستهلاك و تقدير بالوزن للسعرات الحرارية للأطعمة السريعة الأكثر تفضيلا لدى المستهلكين.

شملت الدراسة أربعمائة مشارك بمطاعم الوجبات السريعة والمتنزهات ومراكز التسوق بمدينة بنغازي ، تم استخدام استبيان معد مسبقا لجمع البيانات بين مجتمع الدراسة ، أخذت القياسات الأنثروبومترية (الوزن والطول) لحساب مؤشر كتلة الجسم ، ومن خمس مطاعم مختلفة جمعت خمسون عينة من الوجبات السريعة (السندويشات).

اظهرت الدراسة ان غالبية المشاركين كانوا من الشباب خاصة أولئك الذين تقل أعمارهم عن أربعين عاما ، وأغلبهم من الرجال والفئات السائدة هم الطلاب والموظفون، معظم المشاركين يستهلكون الوجبات السريعة على أساس يومي خاصة وجبتي الغداء والعشاء في مطاعم الوجبات السريعة، اغلبية مجتمع الدراسة يفضلون الأطعمة السريعة العصرية والتقليدية على حد سواء، كان الطعم والاستمتاع بتناول الأطعمة مع العائلة والأصدقاء من العوامل الرئيسية المؤثرة على المشاركين في استهلاك الوجبات السريعة، عينات الوجبات السريعة الغربية كانت في مستوى أعلى من حيث المحتوى الكلي من السعرات الحرارية من عينات الوجبات السريعة التقليدية.

خلصت الدراسة على أن استهلاك الوجبات السريعة ظاهرة متنامية بين المستهلكين في مدينة بنغازي وكشفت أن الأطعمة السريعة هي مصدر مركز للطاقة ذات قيمة غذائية منخفضة.

استهلاك الوجبات السريعة في مدينة بنغازي

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قدمت هذه الرسالة استكمالا لمتطلبات الحصول على درجة الماجستير في التغذية.

جامعة بنغازي

كلية الصحة العامة

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