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Nutritional knowledge and body mass index (BMI) of fast food consumers in Benghazi city, Libya

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Abstract

This study was aimed to determine the frequency of fast foods consumption among consumer at Benghazi city, explore their health and nutritional knowledge concerning fast foods consumption and calculate their body mass index (BMI). Thus a study has been conducted amongst 400 participants attending fast foods restaurants, parks, and malls in Benghazi city. The main results indicated that, fast food consumers are mainly young, especially those under forty years of age, men were higher than women, and the predominant categories were students and employees. More than two third study sample consume fast foods on a daily basis. In addition, the most of participants were known or had some knowledge about the biochemical component, nutritive value, and calories in fast foods, also the diseases caused by excessive consumption of fast foods. 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.

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Introduction

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 [1,2]. 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 [3,4]. 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'' [5]. Fast food is one type of food that able to prepare in short time period and sell to customer in reasonable price [6]. 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 [7].

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 [8]. 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 [9].

Subjects and Methods

Subject: A sample of 400 participants was randomly selected from individuals attending fast foods restaurants, parks, and malls in Benghazi city. The sample was collected randomly from 186 restaurants, according to the administrative division of the regions in the city which were divided into 21 regions.

Methods

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 included date regarding Socio – demographic factors such as (age, sex, marital status, occupation, etc.), Frequency of fast foods consumption, and Nutritional knowledge such as (nutritive value, nutrient, calories in fast foods, etc.). The questionnaire was based on the questions of previous studies with some modifications [6,10].

Anthropometric measurements: Weight and height were measured, and BMI was calculated from the anthropometric data for each participant. Weight and Height was measured using a Seca 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 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).

Results and Discussion

Most of participants in the present study about two-third Table (1), 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), 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%) [11]. In this context, a study in Eskisehir-Turkey, 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 [12]. 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.

Table (2) shows that 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. 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%). 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 done in Sweden, were the most of participants was students (40.8 %), while employed (49.5%) , unemployed (8.7%), and only (1%) were retired [13]. In agreement with the present study results, a 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%) [14].

Regarding to the frequency of fast food consumption (Table 3) show that 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. This result 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 study done in Singapore, 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 [14]. 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 that showed, 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 [5]. 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. According to the knowledge of participant's in current study about the caloric and nutrient content of fast foods, most of them (78.5%) considered fast foods high in calories, while (20.8%) said that medium in calories, and (0.7%) said that fast foods are low in calories (Table 4). This result indicates that the majority of participants considered fast foods as caloric dense foods. While 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 4). Furthermore, 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 (Table 5).

In a comparable study were done among college students in India, 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 [15]. 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 [16]. 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.

Table (6) shows that, 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 carbohydrates and fats, (7%) chose more than one component and only (2%) of participants choose spices. While regarding the biochemical component in fast foods that has negative effects on health 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 were done 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 [17]. According to the knowledge of participant's in current study about the diseases caused by excessive consumption of fast foods, approximately half of participants (48.2%) choose obesity, around quarter (24%) choose cardiovascular disease, (20.8%) choose dislipidemia, and only (7%) for other disease (Table 7). 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 was 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%) [9]. Another study were done in Kuwait, 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 [7]. 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. 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, (16.7%) obese grade one, and (1.8%) of participants was obese grade two (Table 8). While 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 are normal weights, 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 (Table 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 [18]. 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 [16]. In summary, 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 effects on their consumption.

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: 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

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

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Table 4: Distribution of participants according to the knowledge about the calories and nutrients in fast foods.

Knowledge	High		Medium		Low	
	No.	%	No.	%	No.	%
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

Table 5: Distribution of participants according to the effect of the nutritive value importance on fast foods consumption.

Nutritive value importance	No.	%
Not at all	48	12
Rarely	156	39
Sometimes	76	19
Most of times	96	24
Always	24	6
Total	400	100

Table 6: Distribution of participants according to their knowledge about the biochemical components in fast foods that has a positive or a negative effect on health.

Biochemical components	Positive effects		Negative effects	
	No.	%	No.	%
Protein	300	75	8	2
Fats	32	8	208	52
Carbohydrates	32	8	36	9
Salts	0	0	48	12
Spices	8	2	36	9
More than one components	28	7	64	16
Total	400	100	400	100

Table 7: Distribution of participants according to their knowledge about the most common disease caused by frequent of fast foods consumption.

Diseases	No.	%
Dyslipidemia	83	20.8
Obesity	193	48.2
Cardiovascular diseases	96	24
Other diseases	28	7
Total	400	100

Table 8: Body mass index of participants.

BMI	No.	%
Under weight	0	0.0
Normal	112	28.0
Over weight	214	53.5
Obese grade I	67	16.7
Obese grade II	7	1.8
Total	400	100

Table 9: Distribution of participants according to the diet control program

Diet control program	No.	%
Yes	28	7
No	372	93
Total	400	100

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