

EVALUATION OF NUTRITIONAL STATUS OF ARABS LIVING IN UK

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Abstract The purpose of this study is to evaluate the nutritional status of Arabs adults living in UK. The Mediterranean countries included in this study are the states of the Arab league. The Arab league members include 22 countries and these are; Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates and Yemen. Food frequency questionnaire developed by Dehghan et al 2005 for use in the Middle East was used in this study to collect information about the food items consumed by the participants. A nutrient database was developed specifically for this study. The nutrient contents of food items in the questionnaire were extracted from table 19 of the United States department of agriculture food database and food composition tables for use in the Middle East 2nd edition. A total 200 questionnaire had been distributed, 114 questionnaire were received. Several factors had been evaluated; age, gender, smoking, education level, length of stay in UK, body mass index. Results showed that intake of vegetables, cereals, pulses, olive oil, nuts and sweets by women were higher than men. While intake of fruits, meat/chicken, fish and eggs were higher in men than women. Participants who lived longer in UK and second generation seemed to show higher total energy, carbohydrates, protein and fat daily consumption compared to those who lived in UK for a shorter period of time. Smokers showed higher energy, carbohydrates and fat consumption compared to non smokers and former smokers but not protein. Older participants showed higher vegetables, fish, eggs, and nuts consumption than younger participants, while younger participants consumed more sweets and cereals than older participants. Participants with primary education consumed the highest amount of vegetables, meat, chicken, pulses and eggs but they consumed the lowest amount of olive oil and sweets. Obese participants reported the lowest amount of protein, fat, carbohydrates and total daily calories consumed. The general conclusion of this study indicate that adult Arabs living in UK maintained the main elements of Mediterranean diet (eating vegetables, fruits, olive oil). However, the number of participants in this research was small, so further research is needed where a large number of participants is included to enable researchers to compare participants and factors and be able to generalize results more accurately from a large sample of the population.

Index Terms: (Dietary intake, UK, Arabs, Mediterranean diet, Nutritional status)

I. INTRODUCTION

Numerous studies have pointed to the strong link between certain dietary habits and health. For example, intake of different types of pulses, lentils and soy is associated with reduction of serum cholesterol or LDL (low density lipoprotein) by 7% and serum triglycerides by more than 10% [1]. Another study conducted by Garcia-Segovia, Sanchez-Villegas, Doreste, Santana, & Serra-Majem, 2006 who observed an inverse linear trend of olive oil consumption and breast cancer risk; suggesting that olive oil consumption has a protective role against breast cancer [2].

There is a growing trend to study overall food patterns rather than one food item or nutrient like the Mediterranean diet which is a healthy eating pattern with a pleasant taste [3]. Mediterranean diet is the diet consumed in the Mediterranean area which includes Arab countries, Gulf countries, North Africa, Spain, southern France, Italy, Greece and Crete [4]. The characteristics of the Mediterranean diet are; 1) Diversity of foods and tastes. 2) Low in meat and fowl but abundant in pulses and fish. 3) Consumption of fresh food is priority. 4) Little use of processed foods. 5) High consumption of vegetables and fruits. 6) Consumption of monounsaturated fatty acids and this comes mainly from olive oil. 7) Consumption of whole grain cereals. 8) Simplicity of meal preparation. 9) The pleasant taste come from traditional aromas and spices. 10) The quality of the food is maintained with a good and suitable texture. However, the Mediterranean diet is not a homogenous model within the Mediterranean area. There are regional variations due to numerous factors, such as religious, economic and socio-cultural determinants [5]. However, the main elements of the Mediterranean diet are abundance of fresh vegetables, fruits, whole grain cereals, nuts, legumes and olive oil, moderate consumption of dairy products and fish, low consumption of meat and poultry [6].

Mediterranean diet is cardio protective, it can reduce the risk of cancer and improve life expectancy among elderly population. However, despite the apparent healthy benefits of a Mediterranean diet, adherence to this dietary pattern has never been so challenging primarily due to epidemiologic transition [7], demographic and nutrition transition [8]. Nutrition transition is the rapid global changes occurring in food production, distribution and intake, also the physical activity and sedentarianism, and their effects on diet-related diseases [8].

Urbanization, economic growth, technological changes of work, leisure, food production, processing and mass media growth led to increase of degenerative diseases

(nutrition related-non communicable diseases- NR-NCD) such as diabetes mellitus, cardiovascular disease, stroke, hypertension and certain cancers [9]. The risk of developing these diseases is higher in overweight and obese individuals. Recently overweight and obesity increased dramatically in developed and developing countries. This phenomena is observed to increase in America [10], China [11], Kuwait, UAE (United Arab Emirates)[12], Iran [13], Egypt [14], Lebanon [15], Spain [16] and UK (United Kingdom) [5], where the number of obese adults doubled in UK since mid 1980s.

Since numerous negative health outcomes are a direct consequence of the current transition in nutrition, studying this transition becomes necessary. This urged the WHO (World Health Organization)- (2006) to establish a global database on BMI (Body Mass Index) as an interactive surveillance tool for monitoring the nutrition transition. WHO pointed that prevalence of diet-related chronic diseases such as diabetes mellitus, cardiovascular disease, stroke, hypertension and certain cancers are related to increasing prevalence of overweight and obesity [17].

Despite the accumulative scientific evidence regarding the benefits of following a Mediterranean diet [18,19] unfortunately, Mediterranean countries are shifting from their healthy diet to a diet high in fat and sugar. Such shifts are observed in several Mediterranean countries; Kuwait and UAE [12], Spain [16], Egypt [14] and Lebanon [15]. It is vital to promote the Mediterranean diet through communication and educational initiatives; to raise the public awareness about the Mediterranean diet model. Promoting the Mediterranean diet mitigates the undesirable effects that accompany the nutrition transition [20].

This study is aimed to describe the nutritional status of Arabs who lived in UK for at least 1 year and examine the factors affecting the prevailing dietary patterns. To the author's knowledge, this is the first report to describe dietary patterns of this particular population in UK.

At last the purpose of this study is to evaluate the eating patterns of Mediterranean adults currently living in UK in relation to certain factors (age, gender, education level, BMI, smoking and length of stay in UK). The Mediterranean countries included in this study are the states of the Arab league. The Arab league members [21] includes 22 countries and these are; Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates and Yemen.

II. SUBJECTS AND METHODS

Population: A cross-sectional study was carried out in a random sample of adults from the Arab League States living in UK. The sample included those who lived in UK for at least one year. 114 adults aged 18 -88 years participated in this study

(46 males, 68 females). The study was approved by University of Chester ethics committee.

Dietary assessment method: The survey took place between July 06 and December 06. Food consumption data in addition to personal data (education, occupation), height (cm) and weight (kg) were obtained using a food frequency questionnaire developed by Dehghan et al 2005 [12]. Permission was obtained to use the questionnaire for this study. The questionnaire was designed to estimate food intake over the past year. It consisted a list of 113 food items/questions. The foods and beverages were categorized into ten food groups: 1. dairy products, 2. fruits, 3. vegetables, 4. meat, eggs and meat products (including meat organs), 5. mixed dishes, 6. sandwiches and snacks, 7. cereal and cereal products, 8. beverages, 9. sweets, 10. nuts.

Nine categories was used to assess the frequency of intake from "never or less than once a month to 6 or more times" per day. Participants indicated their average frequency of consumption on a weekly, monthly and yearly basis of a specified serving size by checking 1 of the 9 frequency categories.

Data analysis: A nutrient database was developed specifically for this study. The nutrient contents of food items in the questionnaire were extracted from table SR19 of the United States department of agriculture - USDA food database [22] and food composition tables for use in the Middle East 2nd edition [23].

Factors studied:

1. Gender: food consumption differences between males and females had been analyzed.

2. Length of stay in UK: The period of time the participants stayed in UK was categorized into 3 categories. Category one, includes participants who stayed in UK for (1-7) years, category two, includes participants who stayed in UK for (8-17) years while category three includes participants who stayed in UK for 18 years and more.

3. Smoking: participants had been categorized to 3 categories for smoking (smokers, non smokers and former smokers).

4. Age: participants had been categorized to 3 age categories (18-30), (31-44) and (above 45) years.

5. Education level: participants had been categorized to 3 categories regarding education level (1. primary and secondary, 2. high school/college, 3. university level).

6. BMI: participants had been categorized into 4 categories based on the WHO classification. Group 1 ; underweight; which includes participants with BMI below 18.5. Group 2: normal BMI; includes participants with BMI 18.5 – 24.9 Group 3, includes participants with BMI ≥ 25 , this includes participants who are overweight. Group 4, includes participants with BMI ≥ 30 , this includes participants who are obese.

III. RESULTS AND DISCUSSION

A total 200 questionnaire had been distributed, 114 questionnaire were received. The response rate was 57%. The

returned questionnaire were from Arabs from the following countries; Algeria, Djibouti, Egypt, Iraq, Jordan, Kuwait, Libya, Morocco, Palestine, Qatar, Somalia, Sudan, Syria, Yemen.

Comparisons of the study participants revealed that out of a total 114 participants, 48 were males (40.4%) and 68 were females (59.6%). Women showed higher BMI than men. Men were more likely to be smokers than women; 4 males and 3 females were smokers. Participants characteristics are presented in table 1.

TABLE 1: CHARACTERISTICS OF STUDY PARTICIPANTS

Male (N = 46) Female (N = 68)
Age, years (18 - 30) 16 41
(31 -44) 16 15
(45 and above) 14 12
Single 17 16
Married 29 52
Education
Primary/Secondary 5 13
College 14 24
University 27 31
Current smokers 3 1
Non-smokers 34 66
Former smokers 9 1
Length of stay
in UK- 1-7 years 21 30
7-18 years 11 19
> 18 years 14 19
BMI, underweight 0 1
BMI, normal 25 33
BMI, overweight 12 21
BMI, obese 9 13
Prevalence of
heart disease 5 0
Gender differences

The distribution of the study participants by gender is categorised into two groups. Group one is males; it consisted of 46 participants. While the second group is the female group; it consisted of 68 participants. The mean daily calories consumed was estimated to be 2056.4 ± 808.3 kcal/person/day. Comparing gender differences in food intake, the average total calories daily intake of males (2162.8 kcal /day) was higher than females (1984.4 kcal/day). Gender differences in mean consumption revealed that there is a difference in daily protein, fat and carbohydrates consumption values. Men consumed 81.6 ± 40.8 g/day protein while women consumed 70.45 ± 19.34 g/day. Men consumed 292.2 ± 163.7 g/day carbohydrates while women consumed 278.0 ± 92.2 g/day. Fat daily consumption was 81.6 ± 45.4 g/day in men, while women consumed 74.5 ± 37.0 g/day, this contributes to 33.8 % of the total calories consumed by the participants daily intake. It is higher than the recommended by the WHO which is around 15-30 % of the daily energy intake. Individual food groups consumption by the two genders was examined and results revealed difference

between genders in total dairy products and meat/chicken/ beef daily consumption as presented in Table (2). Men showed more dairy products consumption with 465.8 ± 383.6 g/day while women consumed 320.7 ± 227.4 g/day. This is in agreement with Dehghan et al 2005 [12] for the United Arab Emirates and Kuwaiti population. However, these results are not in agreement with Nasreddine et al 2005 [15] for the Lebanese population where women consumed more dairy products daily than men. The present study showed that intake of vegetables, cereals, pulses, olive oil, nuts and sweets by women were higher than men. While intake of fruits, meat/chicken, fish and eggs were higher in men than women. Some of these results similar to the Lebanese population, where consumption of eggs and meat/chicken was also higher in Lebanese men than women. For UAE population [12]; consumption of fruits, cereals and meat were higher in men than women, while women consumed more vegetables than men. In Kuwait, men consumed more fruits, cereals and meat than women, while women consumed more vegetables.

TABLE 2: MEAN CONSUMPTION OF FOOD GROUPS BY GENDER

CONSUMPTION VALUES:	
MEAN \pm STANDARD DEVIATION - GRAM/DAY	
Food Group	Males (N=46) Females (N=68)
Vegetables	175.39 ± 125.59 196.14 ± 104.44
Fruits	356.98 ± 287.75 301.93 ± 206.50
Dairy	
products	465.80 ± 383.61 320.75 ± 227.40
Meat/Chicken	
Beef	105.37 ± 73.44 79.30 ± 38.00
Cereals/Bread	
Potatoes	234.12 ± 125.45 260.71 ± 115.57
Pulses	37.87 ± 42.29 54.92 ± 66.95
Fish	16.39 ± 18.53 14.19 ± 15.16
Eggs	28.31 ± 36.55 20.75 ± 21.03
Nuts	11.86 ± 16.31 12.04 ± 12.65
Olive	
oil	11.27 ± 13.59 11.64 ± 20.02
Sweets	19.81 ± 18.45 30.34 ± 48.18
length of stay in UK	

The distribution of the study participants by length of stay in UK is categorised into three groups. Group I; includes participants who lived in UK for 1 – 7 years. This group includes 51 participants (21 males, 30 females). Group II;

includes participants who lived in UK for 8 – 17 years. This group includes 30 participants (11 males, 19 females). Group III; includes participants who lived in UK for 18 years and more, this group includes the second generation; those who are born in UK. This group includes 33 participants (14 males, 19 females). Participants who lived longer in UK and second generation seemed to show higher total energy, carbohydrates, protein and fat daily consumption compared to those who lived in UK for a shorter period of time. As the number of years of residence in UK increased from [1-7] to [8-17] to [18 & more], the total daily energy intake increased from [1901.0] to

[2125.4] to [2233.8] kcal/day/person respectively. Consumption of fruits, nuts, olive oil, pulses and meat increased chronologically. While consumption of sweets decreased as the number of years of residence increased. Consumption of each food group is presented in table 3.

TABLE 3: MEAN CONSUMPTION BY LENGTH OF STAY IN UK

COSUMPTION VALUES:
 MEAN ± STANDARD DEVIATION - GRAM/DAY
 Food Group 1-7 years N=51 8-17 years N=30 18 years & more N=33

Vegetables	176.13 ± 85.04	163.40 ± 97.33	227.92 ± 151.88
Fruits	265.33 ± 162.36	360.96 ± 253.16	381.58 ± 314.43
Dairy products	339.35 ± 208.36	460.56 ± 410.17	367.12 ± 322.60
Meat / Chicken / Beef	88.35 ± 54.26	88.71 ± 52.58	93.11 ± 63.80
Cereals / Bread			
Potatoes	247.39 ± 114.14	259.53 ± 119.99	245.32 ± 131.10
Pulses	40.27 ± 38.71	41.13 ± 43.54	66.33 ± 87.20
Fish	14.13 ± 10.97	11.33 ± 10.83	19.98 ± 25.21
Eggs	22.37 ± 26.45	17.44 ± 16.37	31.82 ± 37.56
Nuts	9.76 ± 10.96	10.64 ± 10.10	16.16 ± 19.94
Olive oil	8.40 ± 9.23	11.47 ± 10.78	16.28 ± 28.67
Sweets	30.22 ± 52.74	25.84 ± 26.96	19.97 ± 19.09
Smoking			

The distribution of the study participants by smoking is categorised into three groups. Group I; includes participants who are smokers. This group includes 4 participants (3 males, 1 female). Group II; includes participants who do not smoke. This group includes 100 participants (34 males, 66 females). Group III; includes participants who are former smokers, this group includes 10 participants (9 males, 1 female). Smokers showed higher energy, carbohydrates and fat consumption compared to non smokers and former smokers but not protein. Former smokers showed the highest consumption of daily protein with 83.8 g/day compared to 80.45 g/day and 73.8 g/day for smokers and non smokers respectively. The mean consumption values of the various food groups by smoking are shown in Table 4. Non-smokers consumed more vegetables than smokers and former smokers. While smokers consumed more fruits, sweets and nuts than nonsmokers and former smokers. Former smokers consumed more olive oil than nonsmokers and smokers.

TABLE 4: MEAN DAILY CONSUMPTION BY SMOKING LEVEL

COSUMPTION VALUES:
 MEAN ± STANDARD DEVIATION - GRAM/DAY
 Food Group Smokers N=4 Non- smokers N=100 Former Smokers N=10

Vegetables	178.42 ± 183.08	191.60 ± 112.97	153.19 ± 91.08
Fruits	463.47 ± 484.37	325.75 ± 235.98	252.37 ± 188.49
Dairy			

products	273.74 ± 174.18	382.75 ± 319.88	386.79 ± 209.88
Meat / Chicken / Beef	159.96 ± 71.84	81.55 ± 46.59	144.42 ± 89.03
Cereals / Bread			
Potatoes	248.21 ± 173.11	246.25 ± 121.15	287.99 ± 84.13
Pulses	39.09 ± 41.08	51.16 ± 60.63	20.36 ± 34.74
Fish	20.80 ± 38.20	15.10 ± 15.66	12.60 ± 15.46
Eggs	51.28 ± 95.85	22.22 ± 22.89	28.59 ± 30.48
Nuts	19.92 ± 29.89	11.93 ± 13.92	9.16 ± 7.41
Olive oil	5.47 ± 7.29	11.47 ± 18.38	14.05 ± 12.21
Sweets	37.24 ± 30.28	26.70 ± 41.29	15.55 ± 8.81
Age of the Participants			

The distribution of the study participants by age is categorised into three groups. Age group 1 includes participants aged 18-30 years and it includes 57 person (16 males, 41 females). This group includes the majority of the study participants and it consist 50 % of the population studied. Age group 2 includes participants aged 31-44 years and it includes 31 person (16 males, 15 females) and it contributes 27.2 % of the population studied. Age group 3 includes participants aged 45 years and above and it includes 26 person (14 males, 12 females). This group contributes 22.8 % of the population studied.

The third group aged 45 years and more had the highest daily energy consumption than the other age groups with 2185.0 kcal/person/day, followed by age group 2 (31-44 years old) with 2127.4 kcal/person/day, then age group 1 (the youngest participants, 18 – 30 years old) with 1895.0 kcal/person/day. Older participants showed higher daily carbohydrates and protein daily consumption. In age group 3 (45 years and more)

participants consumed 318.17 ± 167.13 g/day and 84.3 ± 36.0 g/day carbohydrates and protein respectively. This is higher than group two and one. Group two (31-44 years) showed highest fat consumption than group one (18-30 years) and group 3 (45 years and more) with 81.53 ± 43.9 g/day.

The mean consumption values of the various food groups by age are shown in Table 5. Older participants in age group 3 showed higher vegetables, fish, eggs, and nuts consumption than younger participants in age group 1 and 2. However, younger participants consumed more sweets and cereals than older participants. This is partially in agreement with Nasreddine et al [15] regarding the Lebanese population, where older individuals showed higher consumption of vegetables and eggs daily compared to younger Lebanese population. Younger Lebanese showed higher consumption of cereals, dairy products, meat/chicken and sweets than older Lebanese.

TABLE 5: MEAN DAILY CONSUMPTION BY AGE COSUMPTION VALUES:

MEAN ± STANDARD DEVIATION - GRAM/DAY
 Food Group 18 – 30 years N=57 31 – 44 years N=31 > 45 years N=26

Vegetables	158.41 ± 93.56	203.01 ± 111.34	233.95 ± 138.35
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Fruits 275.65 ± 214.91 376.30 ± 225.98 368.25 ± 301.91
 Dairy products 314.42 ± 252.29 448.48 ± 393.63 438.97 ± 280.73
 Meat / Chicken /
 Beef 83.59 ± 48.41 99.05 ± 64.06 92.47 ± 62.84
 Cereals / Bread
 Potatoes 258.72 ± 123.23 239.23 ± 113.63 243.66 ± 122.59
 Pulses 44.62 ± 43.58 53.43 ± 84.02 49.10 ± 52.56
 Fish 16.04 ± 18.83 11.98 ± 10.30 16.66 ± 17.35
 Eggs 22.10 ± 20.90 21.30 ± 23.38 30.52 ± 44.23
 Nuts 11.09 ± 11.44 9.14 ± 8.42 17.29 ± 22.10
 Olive
 oil 11.94 ± 17.28 13.81 ± 22.81 7.74 ± 9.57
 Sweets 31.72 ± 50.61 22.23 ± 24.07 18.37 ± 19.23
 Education Level

The distribution of the study participants by education level is categorized into three groups. Group I; includes participants who only obtained their primary and secondary education. This group includes 18 participants (5 males, 13 female). Group II; includes participants who obtained their high/school or college education. This group includes 38 participants (14 males, 24 females). Group III; includes participants who obtained their university education, this group includes 58 participants (27 males, 31 females).

Participants with university education showed the highest daily carbohydrates consumption (296.9 g) compared to high school and secondary educated participants with 264.47 g and 266.58 g respectively. While participants with primary/secondary education had the highest protein content with 79.56 g compared to 68.10 and 78.4 g consumed by high school and university educated participants.

Participants with primary education consumed the highest amount of vegetables, meat, chicken, pulses and eggs but they consumed the lowest amount of olive oil and sweets. Results are in table 6.

TABLE 6: MEAN DAILY CONSUMPTION BY EDUCATIONAL LEVEL

COSUMPTION VALUES:
 MEAN \pm STANDARD DEVIATION - GRAM/DAY
 Food Group Primary/ Secondary N=18 High school/ College N=38 University N=58
 Vegetables 237.14 ± 180.26 168.11 ± 122.03 188.94 ± 94.14
 Fruits 296.46 ± 159.45 279.44 ± 238.75 365.32 ± 245.51
 Dairy products 406.51 ± 124.22 297.70 ± 231.88 442.59 ± 346.17
 Meat / Chicken /
 Beef 107.20 ± 51.54 86.38 ± 51.10 87.29 ± 62.02
 Cereals / Bread /
 Potatoes 247.03 ± 118.10 238.49 ± 131.65 249.93 ± 112.83
 Pulses 69.78 ± 68.84 53.11 ± 78.10 42.31 ± 41.66
 Fish 7.95 ± 10.43 15.66 ± 19.67 16.12 ± 15.30
 Eggs 23.89 ± 24.53 25.00 ± 36.00 23.47 ± 23.63
 Nuts 9.91 ± 11.23 11.60 ± 15.04 12.10 ± 13.29
 Olive

oil 8.73 ± 5.14 14.93 ± 22.10 10.24 ± 16.72
 Sweets 22.16 ± 14.27 29.29 ± 59.27 24.19 ± 26.52
 Body Mass Index -BMI

The distribution of the study participants by BMI is categorized into four groups based on the WHO classification. Group 1 ; underweight, which includes one participant (female). Group 2, normal BMI; includes 54 participants (23 males, 31 females). Group 3, overweight; which includes 38 participants (15 males, 23 females). Group 4, obese; which includes 21 participants (8 males, 13 females). However; only 3 groups had been included in the data analysis, the underweight group had only 1 participant, so it was not included in the comparison.

Obese participants reported the lowest amount of protein, fat, carbohydrates and total daily calories consumed. While participants with normal body BMI consumed the

highest amount of carbohydrates. Participants who are overweight reported the highest amount of protein, fat and total calories consumed daily. The mean consumption values of the various food groups by BMI are shown in Table 7.

TABLE 7: MEAN CONSUMPTION BY BMI (N=113)
 COSUMPTION VALUES:
 MEAN \pm STANDARD DEVIATION - GRAM/DAY
 Food Group I-BMI Normal > 24 N=54 II-BMI Overweight ≥ 25 N=38 III-BMI Obese ≥ 30 N=21

Vegetables 184.44 ± 104.84 193.31 ± 138.18 187.89 ± 89.58
 Fruits 345.50 ± 266.30 347.41 ± 230.49 237.69 ± 185.81
 Dairy Products 358.19 ± 279.20 418.52 ± 390.52 375.63 ± 191.21
 Meat / Chicken /
 Beef 94.94 ± 63.01 91.29 ± 51.31 74.25 ± 46.68
 Cereals / Bread
 Potatoes 252.02 ± 114.17 249.58 ± 134.88 248.68 ± 112.62
 Pulses 50.02 ± 46.61 56.26 ± 81.09 29.52 ± 31.13
 Fish
 18.51 ± 20.30 13.98 ± 12.91 8.97 ± 8.01
 Eggs 29.94 ± 33.39 20.15 ± 21.07 15.42 ± 23.98
 Nuts
 11.72 ± 13.47 12.07 ± 15.75 11.92 ± 13.74
 Olive
 oil 9.86 ± 16.47 15.51 ± 22.74 8.65 ± 5.95
 Sweets 23.77 ± 23.06 23.85 ± 25.21 19.97 ± 17.45

Participants who are overweight showed higher consumption of fruits, vegetables, dairy products, seeds/nuts, pulses, meat/chicken, sweets and olive oil than participants with normal body weight and obese participants. Participants with normal BMI showed the highest consumption of cereals/bread/potato, fish and eggs. Participants who are obese consumed the lowest amount of fruits, cereals/bread/potato, pulses, eggs, fish, sweets and olive oil which may be due to error in reporting the accurate food amounts consumed; which is common among obese individuals.

IV. IV. CONCLUSION AND SUGGESTION FOR FUTURE RESEARCH

The general conclusion of this study indicate that adult Arabs living in UK maintained the main elements of Mediterranean diet (eating vegetables, fruits, olive oil). However, the number of participants in this research was small, so further research is needed where a large number of participants is included to enable researchers to compare participants and factors and be able to generalize results more accurately from this population. Also, an interview will be able to give more information regarding the reason behind choosing certain food items.

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