

# Dietary Habits for Adults in Saudi Arabia

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**Abstract** Saudi Arabia is going through a nutritional transition that is affecting dietary habits negatively, which increases diseases related to poor nutrition, particularly poor breakfast consumption. The aim is to identify the dietary habits of the adult population. A cross-sectional study was run in 2018–2020, collecting data from 4062 healthy males and females aged 18–60 years. A questionnaire that includes sociodemographic status and dietary habits has been measured. Results were analysed by SPSS version 26 for the Chi-square test at a significant level of 0.05. The study found that about 60% consumed 3-4 meals per day, while 36% consumed two or fewer. The eating habits were divided between healthy and unhealthy choices (53% vs. 43%). Females consumed fewer meals than males. 43% of both genders consumed a harmful snack. The snack types were varied, with females consuming fries and vegetables as snacks more frequently than males (18% vs. 9%). In contrast, males consumed more meat sandwiches and leftover cooked food (24% and 19% versus 16% and 13% for females). Equal proportions of men and women consume fruits and nuts. Breakfast is consumed by the highest percentage (36%). 40% of men always consume breakfast, while only 32% of women do so. 32% of individuals of both genders skip breakfast. In conclusion, the poor eating habits of the participants were discovered. These findings are useful for designing nutrition education programs promoting nutritious snack consumption, which might be affected by the nature of breakfast consumption.

**Keywords** Dietary Habits, Food Consumption, Makkah, Snack Types, Breakfast, Males, Females

## 1. Introduction

During the past two decades, Saudi Arabia has experienced significant and dramatic changes in demographics and lifestyles, which have profoundly influenced the dietary preferences and food intake of the entire population [1,2]. In addition, these changes are accelerating as a result of increased urbanisation and its negative effects on dietary patterns and lifestyles. This results in a common occurrence called "nutrition transition" [3,4].

Notwithstanding, nutrition transition results in negative dietary changes, including shifts in the structure of the diet towards a higher energy density diet with a greater role for fat and added sugars in foods, increased saturated fat intake (primarily from animal sources), decreased intakes of complex carbohydrates and dietary fibre, and reduced intakes of fruits and vegetables [5,6].

Therefore, the outbreak of over-nourishment has introduced a new pattern of diseases such as diabetes mellitus (types 1 and 2), hypertension, dyslipidaemia, and cardiovascular diseases (CVDs), which are preceded by a physiological change in the body involving obesity, insulin resistance, and metabolic abnormalities, particularly for women in the Gulf region [6,7].

As Rivera Medina et al study [8] define the dietary habits or eating habits as a "conscious, collective, and repetitive behaviors, which lead people to select, consume, and use certain foods or diets, in response to social and cultural influences". In Saudi Arabia the same definition is applied for the dietary habits. Good dietary habits (AKA eating habits) must be improved and encouraged during infancy and various phases of life to improve health in the near term and prevent the development of harmful habits in maturity and old age. It has been discovered that the dietary

behaviours acquired during infancy are linked to negative long-term outcomes, such as metabolic syndrome [9].

Moreover, socio-demographic factors and lifestyles have significantly influenced the dietary preferences of the entire population over the past two decades [2,6,9,10]. As a result, fruits and vegetables have been the subject of numerous studies focusing on these dietary patterns. These food groups have been ingested as treats or within a healthy dietary pattern [2]. According to their beneficial components of fibre, vitamins, minerals, antioxidants, and phytochemicals, these foods are known for their beneficial effects on chronic diseases such as cardiovascular disease and metabolic syndrome. They can reduce the plasma concentration of C-reactive protein (CRP), an inflammatory marker, thereby protecting against chronic diseases [1,11].

Recent research by Alsulami et al. [6] confirmed the higher prevalence of inadequate dietary intake once more. This poor dietary habits was combined with obesity. In Saudi Arabia, the prevalence of obesity among individuals of all ages and racial/ethnic groups has increased significantly over several decades, reaching between 10% to 30% among adults. A recent study reported that at national level in Saudi Arabia the obesity reach to 23% [13]. Consequently, this increased incidence of obesity contributed to the overall rise in non-communicable diseases among adults [6]. This obesity pattern was associated with consuming snacks between meals, typically high in fat, sugar, and refined foods [14]. The habit of nibbling is prevalent in all societies, particularly among young adults (aged between 14-24 years), where previous studies in Saudi Arabia revealed that approximately 27% of university students snack between meals [1,4]. Food prices also affect dietary choices. Since income and prices are significant determinants of food selection, there is no consensus on how they impact food and nutrients [4, 15]. Healthy dietary intake was associated with having the confidence to prepare healthy meals, having more healthy foods and fewer harmful foods in the household, and having a supermarket within 800 metres of the residence.

Unhealthy dietary intake was associated with being male, frequently consuming meals purchased from a takeaway food shop, café, or restaurant, and having fewer healthy foods and more unhealthy foods accessible at home [1,16].

Breakfast consumption is an essential factor in enhancing nutritional status. It is defined as the first meal of the day, consumed before or at the start of daily activities, within two hours of arising, typically no later than 10:00 a.m., and of an energy level between 20 and 35% of daily energy requirements [17]. Alzahrani et al.'s study [1] of Saudi adults found that breakfast consumption is variable, with 35% of respondents eating breakfast daily and 19% not eating breakfast.

From all the above, understanding the nutritional status of respondents requires in-depth knowledge of the Saudi population's current dietary practices. Thus, this study aims

to examine the common dietary habits among the population sampled in the Makkah region of Saudi Arabia.

## 2. Materials and Methods

### 2.1. Subjects

No subjects were excluded from the investigation, which included 4,062 possibly healthy male and female volunteers. They ranged in age from 18 to 60 and were from Makkah, Saudi Arabia. The definition of "healthy" could include the meaning stated by Evans et al [18] as being active and live longer with good state of mental and wellbeing, even with a disease or disease that could be managed. Thus, to consider the respondents as healthy, a self-evaluation question was included to rate their health from excellent to poor, and most of them have answer to have from very good to excellent health (data not shown here).

### 2.2. Sample Size Calculation

The population of Saudi Arabia in 2018 was approximately 35,827,362 people, according to the Macrotrends website [19]. Using the online sample size calculator at calculator.net (<https://www.calculator.net/sample-size-calculator.html>), a sample size of at least 385 was determined to be necessary for this study with a 95% confidence level and a 5% margin of error. This sample size indicates that at least 895 respondents were sufficient. The collected sample reached 4062 respondents. This study is part of a larger study with many goals, which need a larger sample size for strong statistical analysis, thus no reduction of the collected sample was applied in the current study.

### 2.3. Study Design

A cross-sectional study was selected and conducted between 2019 and 2020. Data were collected online using the Google survey tool with a structured questionnaire that includes sociodemographic status and dietary intake behaviours such as number of meals, eating patterns, and breakfast consumption.

### 2.4. Ethical Approval

The faculty's ethics committee authorised the project's execution and assigned an approval number (HAPO-02-K-06-2019-12-411). To participate in the investigation, written informed consent was obtained. Participants are entitled to confidentiality and have the right to withdraw from the study at any time.

### 2.5. Statistical Examination

All acquired data were tabulated and analysed statistically using version 26 of the Statistical Package for the Social Sciences (SPSS). Frequency and percentages were used to convey qualitative data. For a statistically significant difference of less than 0.05, a chi-square test was conducted to examine the relationship between gender and dietary habits.

### 3. Results

In this study, 50.07% of participants are female, and

49.93% are male (table 1). Most respondents are between the ages of 21 and 30, followed by those between the ages of 31 and 40, with only 9.28% belonging to the elder group. Above fifty percent of the participants hold a bachelor's degree or higher, followed by twenty-four percent who have only completed elementary school. Low income (\$1,500), high income (\$5,000–\$10,000), and extremely high income (>\$10,000) comprised 23.73, 21.05, and 25.87%, respectively, of the total income of participants in this study.

**Table 1.** Sociodemographic Variables (n = 4062)

variables	category	Count	%
Gender	Female	2034	50.07
	Male	2028	49.93
Age groups	18-20	545	13.42
	21-30	1951	48.03
	31-40	698	17.18
	41-50	491	12.09
	51-60	377	9.28
The education levels	Primary Education	989	24.35
	High School	506	12.46
	Bachelor's Degree	2332	57.41
	Higher Education	235	5.79
Income level	Less than 1500 SR	964	23.73
	1500-3000	503	12.38
	More than 3000 to 5000	486	11.96
	More than 5000 to 10,000	855	21.05
	More than 10,000	1051	25.87
	Other	203	5

**Table 2.** Frequencies of dietary habits for the studied sample (n = 4062)

Variables	Category	Count	%
Number of meals a day	Two or less	1448	35.65
	3-4 meals	2361	58.12
	More than 4 meals	253	6.23
Usual snacks	Healthy snack	2145	52.81
	Nothing	184	4.53
	Unhealthy snack	1733	42.66
Types of snacking	Chips	917	22.58
	Fruits	220	5.42
	Leftover Food	669	16.47
	Meat Sandwich	816	20.09
	None	184	4.53
	Nuts	816	20.09
	Vegetables	440	10.83
Eat breakfast	Never	1294	31.86
	Sometimes	1300	32
	Always	1468	36.14

About 60% consumed three to four meals per day, while 36% consumed two or fewer. Table 2 shows that a minority consumed more than four meals daily. A high percentage of study participants consumed snacks, while only 4.5% did not. The eating habits were almost evenly divided between healthy and unhealthy choices (53% versus 43%). Consequently, there was a wide variety of snack types, with chips, meat sandwiches, and nuts being the most popular between-meal snacks, with about 20% of respondents consuming them. 11 to 17% of individuals consumed vegetables and leftovers. At the bottom of the list was fruit consumption as a snack, and 5% did not consume any snacks. The breakfast consumption patterns of respondents demonstrates a trend. This trend increases from those who do not consume sometimes to those who eat frequently. It revealed that those who always consume breakfast had the highest percentage (36%), followed by those who sometimes eat breakfast and those who never eat breakfast (32% and 31%, respectively).

**Table 3.** Genders divided by number of meals (n = 4062)

Number of meals a day	Female	Male	Pearson $X^2$ (p-value)
2 or less	897 (44.1)	551 (27.17)	140.57 0.0001
3-4 meals	999 (49.12)	1362 (67.16)	
more than 4 meals	138 (6.78)	115 (5.67)	

When comparing males and females based on the number of meals, there are significant differences between all categories. Females consumed fewer meals than males, with 44% of females eating two or fewer meals daily compared to 27% of males. In contrast, 67% of males and 50% of females consume three to four meals per day. However, both genders were less likely to be found among the 6% of individuals who consumed more than four meals (Table 3).

**Table 4.** Genders divided by the healthiness of snacking (n = 4062)

Usual snacks	Female	Male	Pearson $X^2$ (p-value)
Nothing	107 (5.26)	77 (3.8)	6.52 -0.038
Unhealthy snack	880 (43.26)	853 (42.06)	
Healthy snack	1047 (51.47)	1098 (54.14)	

All categories differ significantly when comparing females and males based on their consumption of snacks. Females who do not consume snacks were more than men (5% vs. 4%, according to Table 4). Nonetheless, approximately 43% of both genders practise the same harmful snack consumption behaviours. Similarly, both genders consumed a healthy snack, although males are more prevalent in this group (54% versus 51%).

**Table 5.** Genders divided by type of snacking (n = 4062)

Types of snacking	Female	Male	Pearson $X^2$ (p-value)
none	107 (5.26)	77 (3.8)	114.56 -0.0001
chips	553 (27.19)	364 (17.95)	
leftover food	275 (13.52)	394 (19.43)	
meat sandwich	327 (16.08)	489 (24.11)	
fruits	94 (4.62)	126 (6.21)	
vegetables	256 (12.59)	184 (9.07)	
nuts	422 (20.75)	394 (19.43)	

When comparing females and males according to snack consumption, Table 5 revealed a statistically significant difference. Females consumed fries and vegetables as a snack more frequently than males did (18% vs. 9%). In contrast, males consumed more meat sandwiches and leftover cooked food (24% and 19% versus 16% and 13% for females). Equal proportions of men and women consume fruits and nuts (approximately 6% for fruits and 20% for nuts). Four to five percent of respondents do not consume any snacks.

**Table 6.** Genders divided by preferred eating breakfast (n = 4062)

Eating breakfast	Female	Male	Pearson $X^2$ (p-value)
Never	633 (31.12)	661 (32.59)	46.99 -0.0001
Sometimes	747 (36.73)	553 (27.27)	
Always	654 (32.15)	814 (40.14)	

When respondents were questioned about their breakfast dietary patterns, Table 6 reveals a significant gender gap. 40% of men always consume breakfast, while only 32% of women do so. 37% of females, compared to 27% of males, occasionally consumed breakfast. 32% of individuals of both genders skip meals.

## 4. Discussion

Diet has two aspects, quality, and quantity, which affect these health outcomes. Kesh's group has shown that oxidative stress at the nuclear level will occur as an inflammatory response, which is increased by higher fat consumption [20]. This inflammation effect was reduced with higher consumption of fruits and vegetables with more fibre, even if the meals had the same calories [20].

It was found that people in middle-aged, higher education, and socio-economic status have higher nutrition knowledge levels than younger and older persons. Studies found positive associations between nutrition knowledge and dietary intake or pattern. Higher nutrition knowledge, a

greater intake of vegetables and fruit, and a lower fat intake were also reported. Positive associations were found between higher nutrition knowledge and a greater intake of cereals or fish, a lower intake of sweetened drinks, a higher intake of fibre, and higher consumption of some food groups more consistent with public health guidelines. Understanding food labels requires knowledge to choose what ingredients or nutrients are desirable (e.g., whole grains, dietary fibre, and others) or undesirable (e.g., saturated fat and salt) [21].

Thus, in the current study, dietary habits are varied. In general, out of all respondents, most eat the recommended number of meals (3–4) per day or about 60%. Very few people eat more than four meals a day. A high percentage of study participants consumed snacks, while only 4.5% did not. Alzahrani et al. [1] found different allocations of snacking habits, with about 18% of the participants having no snacking, 26.5% eating snacks daily, and 27.8% rarely having snacks. Snack types were varied as a result, which could be called fast food. The definition of fast food is food that is quickly prepared and served. Chips, meat sandwiches, and nuts, the most common snacks between meals, also hold the same level among the respondents, about 20%. A lower proportion consumed leftover food and vegetables (11-17%). At the end of the list was fruit consumption as a snack; equally, 5% do not eat any snacks.

The snacking habits were divided almost equally between healthy and unhealthy types (53% vs. 43%), respectively. According to their reflections on the Healthy Eating Habits for adults, Alzahrani et al. [1] discovered that 31% of the respondents have a lower healthy eating patterns. A recent study of former Saudi athletes found that 84.29% consumed fast food, and about 72% had a large consumption of soft drinks [22]. It has been reported that unhealthy diet consumption (fast food) is significantly associated with a sedentary lifestyle.

Our study compared women and men regarding snack consumption. The study found that a small proportion, about 5% of respondents, do not eat snacks at all. This was close to the findings of the Aljefree et al. study, which found that about 2% of the population do not eat snacks among university students [13]. Furthermore, in the current study, females consumed vegetables as snacks more than males (13%), compared to 9% only. Fruits and nuts are equal for both genders (about 6% for fruits and 20% for nuts). Al Aljefree et al. [14] compared obese and non-obese students' snacking habits to find that both weight groups consume fruits, vegetables, and nuts equally. However, obese respondents consumed more chocolate, chips, and biscuits than the normal weight group. Conversely, salad is consumed as a snack more by the normal weight group (25% vs. 18%). Our study shows that females consumed more chips compared to males (27% vs. 18%), while males ate meat sandwiches (24% vs. 6%) and leftover cooked meals more than females (19% vs. 13%). Alzahrani et al. [1] indicated that participants consumed daily vegetables and fruits by 20.4% and 11.9%, respectively. In comparison,

fried food served as a meal or snack was consumed by 10% daily. Ismail et al. found that daily consumption of fruits and vegetables was 29% and 34%, respectively [23].

Regardless of gender, Aljefree et al. [14] found that among university students, healthy snacks were consumed by 40%, with nuts at 55%, salads at 25%, vegetable intake at 40%, and popcorn at 40%. The unhealthy choices represent 46.7%, including biscuits, chips, and chocolate, for 20%, 50%, and 70%, respectively. The study found significant differences between obese and non-obese students regarding the consumption of chips and popcorn biscuits in obese subjects and salad intake in non-obese students.

As a result, a study conducted in Brazil noticed that sedentary behaviour was associated with increased consumption of unhealthy foods such as fatty foods [24]. A positive correlation was also observed between physical activity (PA) and increased consumption of healthy foods such as fruits and vegetables. The students in the Alzahrani et al. study were aware of the concept of a healthy, balanced diet in more than half (53.7%). However, they claim that a balanced diet and nutrition could be mainly vegetables, "mainly meat", or "mainly carbohydrates", by 32.0%, 7.1%, and 5.6% of the students, respectively. However, they score 4.2 in the range of 0–10 in the healthy habits score [1].

Individuals must be aware of the food's nutritional content and make informed choices to prioritise their health and well-being. High added sugars, unhealthy fats, and sodium levels in fast food can also negatively affect overall health, increasing the risk of chronic diseases such as heart disease and diabetes [22].

A university student' study by Shatwan et al. [4] revealed that healthy dietary patterns were associated with higher income and being active. Three healthy eating snack patterns were observed in the study: students consumed vegetables, fruits, yoghurt, and Greek yoghurt, and close to healthy eating were dairy products and substitutes: milk alternatives, milk, sweet milk, yoghurt, and Greek yoghurt. Aljefree et al. [14] found that snack consumption was on a daily basis at about 35%, compared to only a quarter (25%) who consumed it 3–4 times per week. Our studies found that when comparing females and males according to snack consumption, the results showed that both genders have the same unhealthy snacking habits in about 43% of cases. In a similar line, both genders consumed healthy snacks, yet males are more common in this group (54% males vs. 51% females). The combination of easy access to these foods and a lack of awareness about their negative impact on health has increased obesity rates within the region.

This fast-food consumption is common in **Gulf Cooperation Council** countries (GCC), particularly in urban areas. In addition, many European and US-based fast-food chains have entered the GCC countries, particularly Saudi Arabia [25]. The representation might differ slightly in Khashm Al-Aan, a suburban community located west of Riyadh with 55,000 people. The definition

of suburban areas is lower-density areas that separate residential and commercial areas. They are either part of a city or urban area or exist as a separate residential community within commuting distance of a city. Regarding the number of meals consumed, about 50% consumed more than 4 meals a day. However, meals from home for 78% of people, with a larger proportion of people who do not eat fast food (85%) [26]. This indicates that the urban lifestyle has become more convenient with higher fast-food options and further growth in unhealthy eating habits.

From the snacking habits, one could expect the number of meals to be affected proportionally. In the current study, females had fewer meals than males, with 44% of females consuming two or fewer meals a day compared to 27% of males. In contrast, 67% of males eat 3–4 meals, while females eat 50% daily. However, both genders were less likely to be found among the higher number of meal consumers (6%). The suburban meal pattern focuses mainly on lunch meals and skips breakfast, meaning they consume 1 to 2 meals daily [26]. On the contrary, the Ismail et al. study found that almost half the respondents got less than 3 meals a day compared with more than three meals [23]. Aljefree et al. [1] indicated that 68% of obese students consumed 2 meals daily compared to 57% of normal weight [14]. In contrast, normal individuals found more in the one meal a day and more than three meals a day groups compared to the obese group. However, Alzahrani et al. found regular meal consumption for 50% of the study sample.

Dietary recommendations aim to promote good health and prevent diet-related diseases. They are based on scientific evaluations of human nutritional needs and diet to prevent major chronic diseases [27]. In addition, dietary habits, and cultural aspects of the population they target are also considered [28]. The most recent dietary guidelines for Americans to be developed were from 2015 to 2020. The aim is still to follow a healthy eating pattern. Concentrate on variety, nutrient density, and how much; reduce calories from sugar and SFA and decrease sodium intake; convert to healthier eating and drink choices; and back up healthy eating patterns for all [29].

Unhealthy eating habits are associated with meal-skipping nutrition. Unhealthy food consumption is typical during adolescence and includes excessive consumption of sugar-sweetened beverages, sweets, fatty, salty snacks, and reduced consumption of fruits, vegetables, and milk or dairy products [30]. These habits are concerning because of their close association with increased risks for obesity and cardiovascular disease. Habits such as skipping breakfast or replacing dinner with snacks have been frequently reported among adolescents. These habits may result in low nutritional diet quality, inadequate nutrient intake, and an increased risk of overweight and obesity. Skipping breakfast meals can lead to many health problems for adults. Eating three meals a day with balanced nutrition is essential for optimal growth

and development in children [31].

High-calorie sweet beverages or fast foods are consumed more during meal skipping because calories that should be ingested in one meal increase. When poor eating habits persist, dietary fibre and micronutrient intake can also decrease, potentially endangering children's health. Consuming regular meals also positively influences the student's study performance and grades [9].

Breakfast intake greatly helps improve memory in children with a risk for nutrient deficiency, and the school breakfast program improves class attendance and academic performance [31]. In children and adults, pilot experimental studies conducted by Pereira's group on breakfast frequency and quality showed that breakfasts higher in whole grains and fibre had positive influences on appetite control, insulin resistance, and mood relative to breakfasts containing primarily refined grains or skipping breakfast [32]. Skipping breakfast is related to increased consumption of soft drinks, French fries, and snacking. Meal skipping can influence the incidence of obesity. Several studies on meal skipping have reported the effect of skipping breakfast on health [31]. Subjects who skipped breakfast had higher body mass index (BMI) than those who ate breakfast. Thus, skipping meals has a negative effect on health. One of the important meals that should not be left out is breakfast [32]. The respondents in our study showed a trend towards breakfast consumption habits. The highest percentage goes to those who always consumed breakfast (36%), 32% had breakfast sometimes, and 31% did not. High-calorie sweet beverages or fast foods are consumed more during meal skipping because calories that should be ingested in one meal increase. When poor eating behaviour continues, excessive energy intake can be accompanied by decreased dietary fibre and micronutrients, possibly threatening children's health. Consuming regular meals also positively influences the student's study performance and grades. Bader et al. found that the most neglected meal in suburban areas in Saudi Arabia was breakfast for 65.4% of respondents [26]. In the Ismail study et al., more than half of the participants skipped breakfast meals [23]. Alzahrani et al. [1] found better patterns in university students, with 35% having breakfast daily, while 47% consumed breakfast between 1–4 times a week, leaving out 18.5% who rarely ate breakfast. Al-Gelban [33] stated that about 33% of university students had breakfast every day, with only 3% who did not have breakfast in between. Most students consumed breakfast from 2–6 weekly items.

The issue of skipping breakfast might develop at an early stage of life, as a study of schoolchildren aged about 9 years on average found that compared with public and private schools and breakfast consumption daily, only 20% of boys students in private schools on average ate more breakfast than girls in private school, and both boys and girls in public school (4 days/week) vs. 3.8 days per week for all other groups [17]. Therefore, the dietary intake changes to a higher energy-density diet rich in SFA

(mostly from animal sources) and added sugars. This is combined with reduced intakes of complex carbohydrates and dietary fibre and reduced fruit and vegetable intakes [5]. A Saudi Health Interview Survey (SHIS) report showed that 5.2% of individuals only meet [12].

## 5. Conclusions

The findings of the current study made the link of several factors if they act together might lead to the increase of non-communicable diseases. The poor eating habits of the participants, the failure to meet the recommended healthy food intake and their increased consumption of fast food and fatty items. Add to this the factors of snack consumption habits as part of the dietary patterns were also illustrated. Furthermore breakfast habits also shed the light on the total dietary intake and affected the daily dietary patterns.

These new results contribute to more understanding of the complicated dietary factors effect on the individual dietary habits and choices. Thus, they may be useful in the future for designing nutrition education programs that promote public health through the consumption of nutritious snacks, healthy breakfast, and better choices as possible. Besides additional research is required to establish a link between obesity and snacking and breakfast consumption patterns.

Snacking patterns, breakfast consumption, and dietary behaviours in various regions must be investigated. There is a need for interventions that encourage healthy eating practices. In addition, regardless of BMI or weight change, education regarding weight management programs is also necessary. Other factors, such as psychosocial factors related to dietary practices, must be investigated.

The study limitation could be stated that only one region is targeted by the study (i.e. the Makkah region), where other areas in Saudi Arabia may have a different dietary habit. Additionally, the study cross-sectional design of design does not allow to infer the causes-outcomes relationship of dietary pattern and other factors in the study. Finally the study did not apply to the children and younger age groups lower than 18 years old. On contrast, the study has many strength points such as a large sample size, simple questionnaire that could be used easily at home or by professionals to find the dietary habits in other areas of Saudi Arabia. Several factors of dietary habits were included and provided a better understanding of this complicated issue. This aim of the study of finding the dietary habits of the Makkah region has not been investigated before in the same region of Saudi Arabia. The study findings also show the international research body what is the dietary habits using a Saudi representative sample.

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