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Measuring Community Awareness about the Nutritional Facts in Fast Food in the United Arab Emirates: A Cross-sectional Study

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Abstract **Background/Aim:** According to the World Health Organization (WHO), the percentage of overweight and obese people in UAE in 2016 was 70.6% and 34.5% respectively. Current evidence links obesity to unhealthy eating habits. This study aims to assess the awareness of nutritional information about fast food among adults in the UAE. **Methods:** A cross-sectional study was conducted among 462 subjects aged 18 and above through an interview or a self-administered questionnaire. A pilot study was conducted on 15 subjects and necessary changes were done to the questionnaire. Data was entered and analyzed using SPSS 25. Frequency and percentage of subjects correctly identifying the caloric content and harms and diseases associated with the consumption of each type of fast food were calculated. Bar graphs were used to compare and demonstrate the results of the study. **Results:** 44.2% of the subjects were able to correctly identify the caloric content of fast food. 53.5% of the subjects were able to correctly identify the diseases and harms associated with fast food consumption. 87% of the subjects believe that nutritional labels should be implemented in fast food restaurants. After the correct caloric content of each fast food was shown to the subjects, 44.35% were not willing to change their fast-food consumption habits, with the reason being the good taste of the food in 65.38% of the subjects. **Conclusion:** Less than half of the community has adequate knowledge about the caloric content of fast food. Almost half of the community has inadequate knowledge about the diseases and harms associated with fast food consumption. Most of the community think that nutritional labels should be implemented at fast food restaurants.

Keywords Obesity, Fast Food, Caloric Content

1. Introduction

The purpose of this study is to determine if there is a need to increase awareness about the nutritional information of fast food and to determine if there is a need to introduce nutritional labeling to fast food restaurants.

Over the past few decades, changes in eating habits have contributed to unhealthy weight gain. In fact, in the United Arab Emirates (UAE), key changes in the society and overall structure of the country have contributed to unhealthy eating habits. Chiefly, the newly urbanized community coupled with the transition into a Western lifestyle has dramatically changed eating behaviors by introducing more fast food into the public's diet, especially in adolescents [1]. The traditional Arabian diet has changed from high fiber and low-in-fat diet to a Western diet which is high in fat, free sugars, sodium, and cholesterol [2]. One of the main causes for such changes is the introduction of fast-food restaurants in the region. A lack of awareness of the nutritional content of such food may be detrimental to consumers. Therefore, the study may indicate the need to raise the awareness of the public.

Not only have the eating habits of the community changed, but a steady rise in obesity in the community was noticed, especially amongst adolescents. The prevalence of obesity among expatriates in the UAE is 32.3%, while 43% are overweight [3]. This could be due to unhealthy eating habits, and solutions must be found to reduce these rates. A study examined the association between the awareness and use of nutrition labels and obesity among Koreans and found that awareness and use of nutrition labels were significantly associated with the prevalence of obesity [4]. Thus, it is important to assess the knowledge and use of food labels of fast food in the UAE to help in controlling obesity.

Furthermore, a rising trend in the consumption of fast food accompanies a dangerous trend of cardiometabolic disorders [5]. According to a review of the fast-food pattern and cardiometabolic disorders, frequent fast-food consumption resulted in a gain of abdominal fat, impaired glucose, and insulin homeostasis, lipid and lipoprotein disorders, induction of systemic inflammation and oxidative stress [6]. High fat and sodium content, as found in fast food, may predispose consumers to other comorbidities such as cardiovascular disease. Modifiable risk factors of heart disease are highly prevalent in the UAE, as 66.8% of people with heart disease in the UAE are either overweight or obese [7].

In addition, menu labeling has been reported to significantly impact food choice in an obese population in the United Kingdom, such that a reduction in calories selected was observed [8]. For example, an individual would weigh options on a food menu while comparing the nutritional facts of each choice resulting in an increase in healthy food choices. As unhealthy eating habits are very common, such knowledge may result in better eating habits. Another study assessed consumer awareness of menu calorie information at fast food chains after displaying food-item calories on menus and menu boards in New York. The study found that posting calorie information on menu boards increases the number of people who see and use this information [9]. Thus, it is important to assess the awareness of fast-food calorie information to know if fast-food calorie labels need to be implemented in the UAE.

This study may aid in decreasing the prevalence of morbidities associated with obesity by helping people gain a better understanding of the risk. This may lead to people attempting to improve their diet and lifestyle. This study is significant as the community is dangerously leaning towards unhealthy food choices and relying more on fast food. Meanwhile, most fast-food restaurants do not include nutritional information on the menu; therefore, the consumer does not even know what he or she is consuming. Multiple studies of obesity in the United Arab Emirates have been conducted, focusing on multiple factors with diet being the main one. Thus, this makes this study valuable as it focuses on determining factors that affect the diet of the UAE community. Determining the awareness of nutritional information among the UAE community is also a newly explored area. Therefore, the study may improve the practice of making better food choices, introduce the idea of nutritional labeling in restaurants, and improve the quality of life in the country.

2. Materials and Methods

2.1. Study Design

This study aims to assess the knowledge of nutritional information among the UAE community in Sharjah and Ajman. This study utilizes a cross-sectional research design because we assess the knowledge of the community about nutritional information at a single point in time. Moreover, our study is inexpensive and quick compared to other study designs, since we select one group of people and collect the data from them at the same time. In addition to that, our results are generalizable, as they are based on a sample chosen from the population. Correspondingly, since our study is a cross-sectional study, we are not able to determine the reason behind our results (for example we wouldn't know why one gender knows more than the other).

2.2. Sampling

The target population of the study is the community of the UAE including all UAE citizens. The term UAE citizens in our study is defined as all people living in the UAE including both local and non-local citizens. The accessible population in the study are people in public places such as parks, malls, educational institutes, neighborhoods, governmental buildings, and coffee shops in the UAE.

2.3. Inclusion and Exclusion Criteria

The inclusion criteria are citizens aged 18 or more as this population decides on their own food choices. The exclusion criteria are citizens who speak neither English nor Arabic since we cannot translate our questionnaire

properly and scientifically into another language.

2.4. Sampling Method

The sampling method that was used in this study is sampling by convenience. The reasons behind this choice are first, to do a proper randomized sampling, we need a sampling frame which is hard to attain in this study due to our limited access to such information. The second reason is that convenience sampling does not waste a lot of time and is better than using volunteers or snowballing.

2.5. Sample Size

We calculated the number of samples needed using the formula: n = 1540 p (1 – p). We don't have any previous expectations of the variable (prevalence of knowledge about fast food nutrition). Thus, we used 50% (0.5) as the amount of p. We used the following formula to get the minimum number of questionnaires needed. N = 1540 (0.5) (1 –0.5) = 385. Therefore, the minimum number of questionnaires needed to conduct the study with a sampling error of 5% is 385 questionnaires. To account for any questionnaires that might get lost while doing the study or any unexpected error, we will be adding another 77 questionnaires (20%), making the total number of questionnaires 462.

2.6. Data Collection Methods

The data collection method is based on a questionnaire along with an interview that was conducted among community members aged 18 and above, who were selected randomly. The questionnaire consists of a total of 20 questions and is divided into 3 different sections, which are: demographics, knowledge, and practices. It was developed by the researchers and filling it takes no more than 5 minutes. Most questions are close-ended questions to make it easier for the public to fill in the questionnaire. The questionnaire was pilot tested on a sample of 15 subjects. Accordingly, necessary changes were made to the research questionnaire as needed. The data collection was done in malls and public places in the UAE. The task was distributed equally among the researchers, where each one was responsible for handing out questionnaires to the public as well as answering any inquiries that participants may have. The researchers conducted training sessions for the standardization of data as well as an explanation of the questionnaire in preparation for data collection.

2.7. Data Analysis

Data was coded, entered, and analyzed using SPSS 25 (Statistical Package for Social Sciences). As appropriate to the type of data analyzed, for univariate analyses, percentage and frequency of each response was calculated.

3. Results

As seen by Table 1, the gender in our sample was balanced to an acceptable limit, where 45% of the sample consisted of males and 55% were females. As for the age groups, half of the subjects are aged between 18 – 25. The other half of the subjects are distributed among the rest of the age groups and decrease as the age group increases. Most of the participants had their highest educational level as a bachelor's degree, followed by a high school degree. The most frequent occupational group among the subjects is students (Figure 1). The frequency among the rest of the occupational groups is almost equally distributed.

Table 1. The gender, age, and highest educational level of the study participants.

Participant's Demographics		
Variable	Data	Percentage
Gender	Males	45%
	Females	55%
Age in years	18 – 25	50%
	26 – 33	25%
	34 – 41	12%
	42 – 49	8%
	50+	5%
Highest educational level	Middle school and below	2%
	High school	32%
	Technical school	2%
	College or diploma	9%
	Bachelor	46%
	Postgraduate	9%

Regarding the knowledge of the caloric content of fast food, 59.9% of the subjects correctly identified the caloric content of soft drinks and fries, 51.7% correctly identified the caloric content of cheeseburger, while only 31.9% of the participants were able to correctly identify the caloric content of chicken Caesar salad with dressing (Figure 2). Therefore, 44.2% of the subjects correctly identified the caloric content of fast food.

Regarding the perceived harms of fast food, 85.9% of the subjects were able to identify obesity because of consuming fast food, 68.2% correctly identified heart disease, and 65.7% correctly identified type 2 diabetes, while only 18.9% were able to link fast food consumption to headaches (Figure 3). Therefore, 53.5% of the subjects were able to correctly identify the diseases and harms associated with fast food consumption.

As seen in Figure 4, 65.2% of the subjects were able to correctly identify 3 or more of the 6 diseases and harms linked to fast food consumption. 17.9% identified only 2 harms, while 16.6% were only able to identify 1 harm. 12.6% identified 5 of the 6 harms, while only 8.4% were able to correctly identify all the 6.

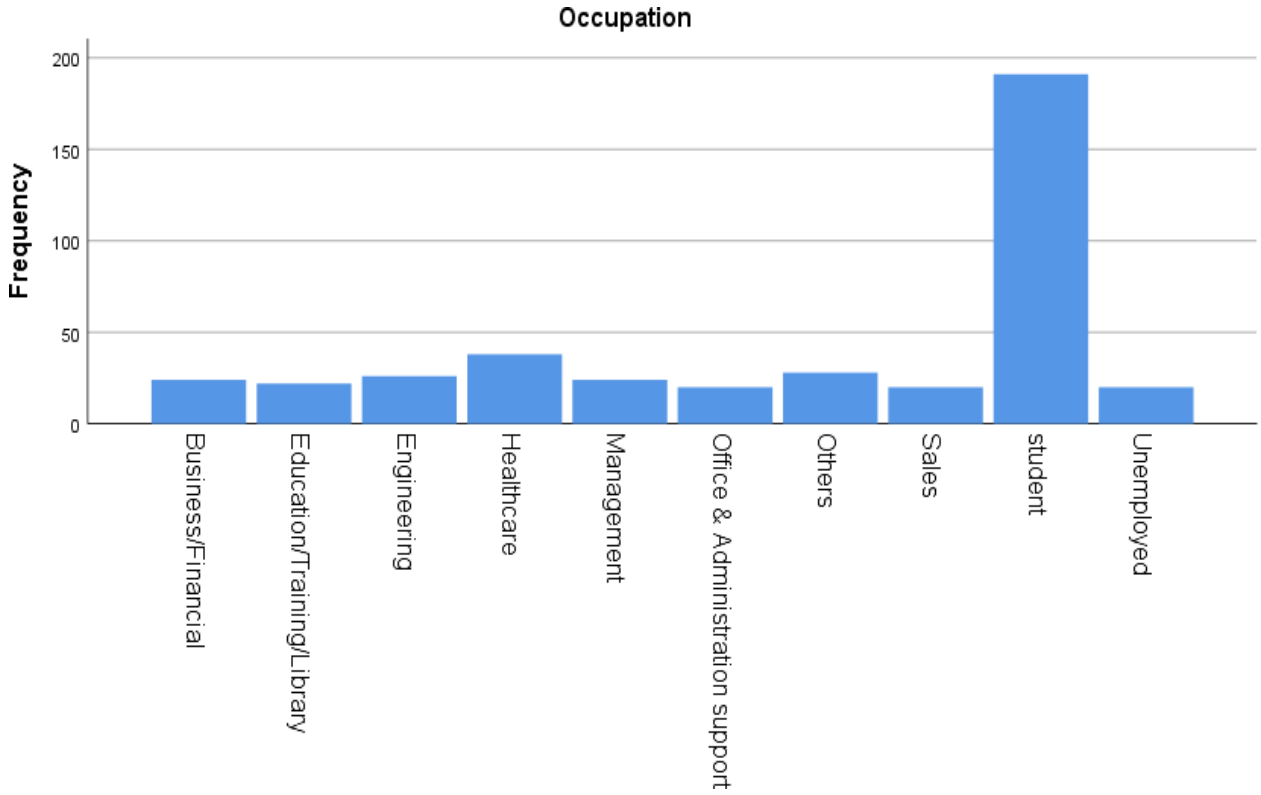

Figure 1. The frequency of each occupation among study participants.

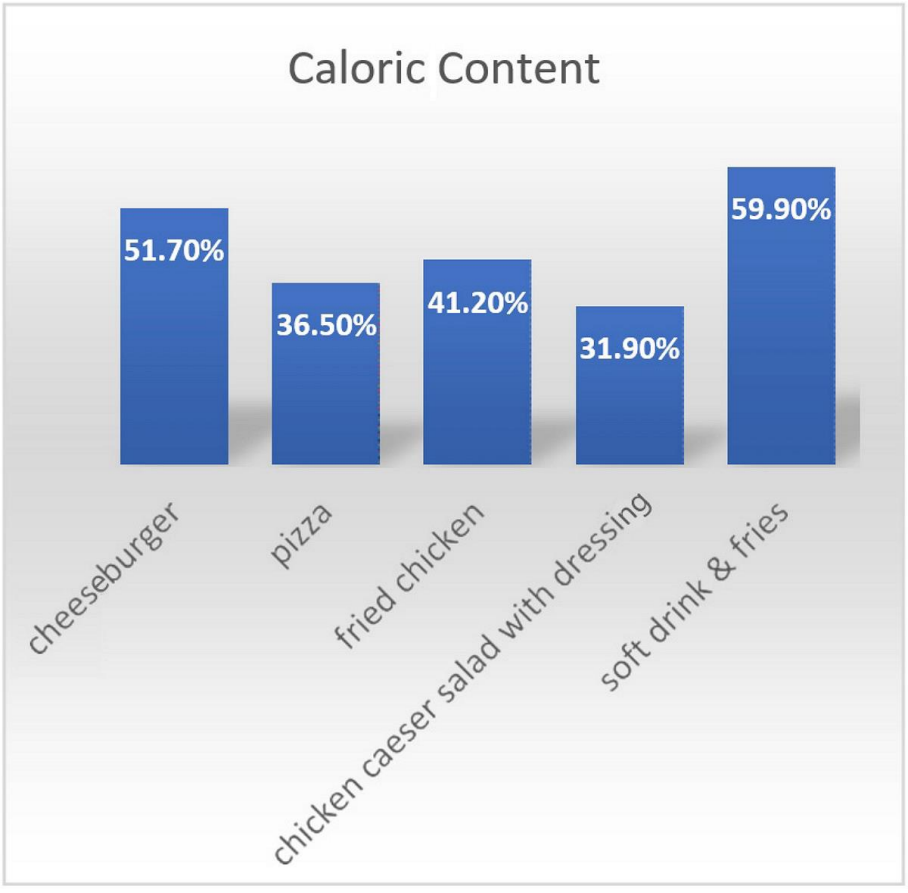

Figure 2. The percentage of subjects who identified the caloric content of each food.

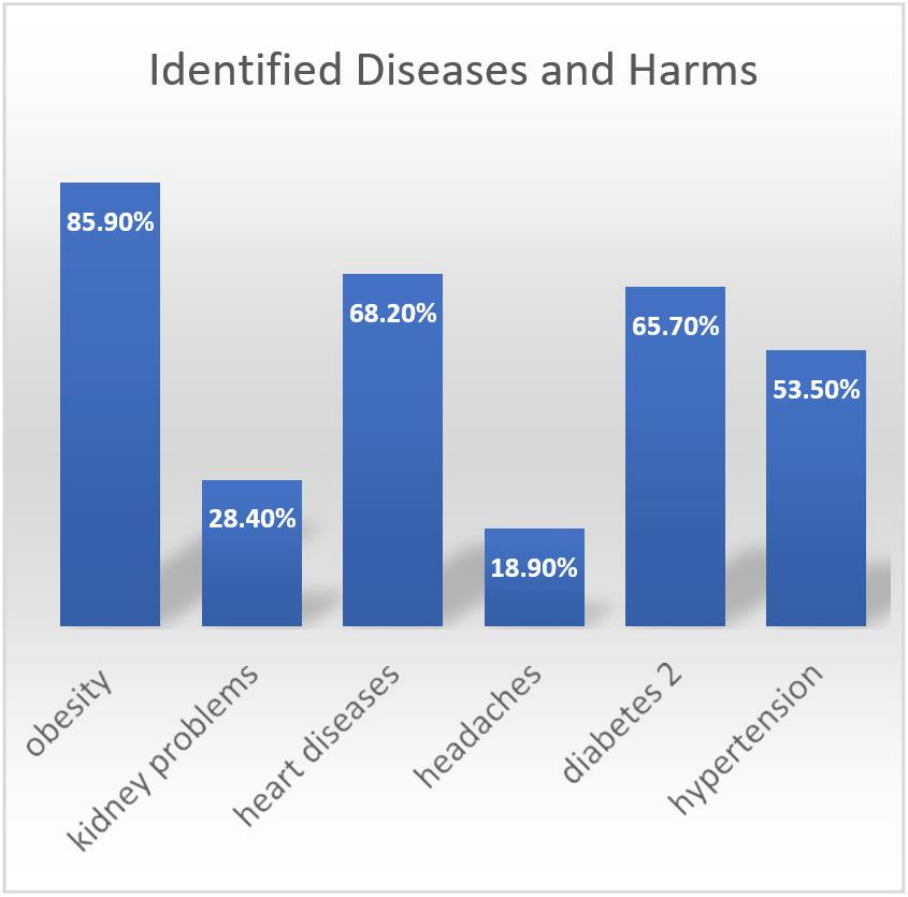

Figure 3. The percentage of subjects correctly identifying each disease because of fast-food consumption.

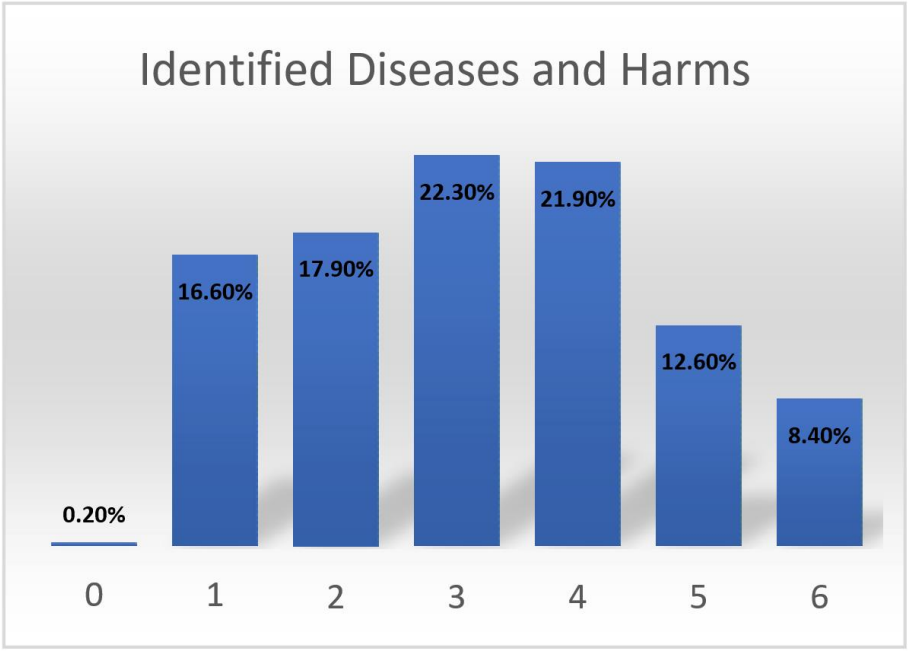

Figure 4. The number of harms correctly identified.

Regarding the consumption of fast food, most people consume fast food either sometimes or often, while only a low percentage of people consume it always or do not consume it at all (Figure 5).

After showing the real values of the caloric contents to the subjects, they were asked whether they would change their fast-food consumption habits or not. The results were that 55.65% were willing to change their fast-food consumption habits after knowing the real caloric contents of fast food, while 44.35% were not.

The reason why 65.38% of the people who would not want to change their fast-food consumption habits is because they like the taste of fast food, 23.08% do not want to change because they are aware of the caloric content of fast food and see that fast food is fitting for their diets, while only 11.54% would not change because the price of fast food is cheap (Figure 6).

As seen in table 2, 80% of the subjects think that adding food labels to fast food restaurants is beneficial, while 20% think that they are not. 87% of the subjects think that fast food labels should be implemented in fast food restaurants, while only 13% think that they shouldn't. The label which people care about the most when reading nutritional labels of food is fats.

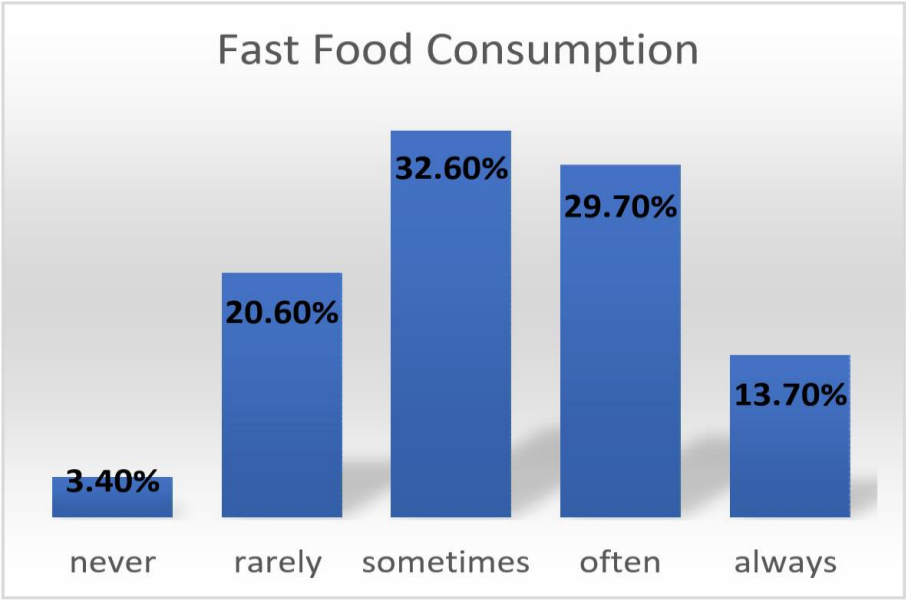

Figure 5. The frequency of fast-food consumption among the subjects.

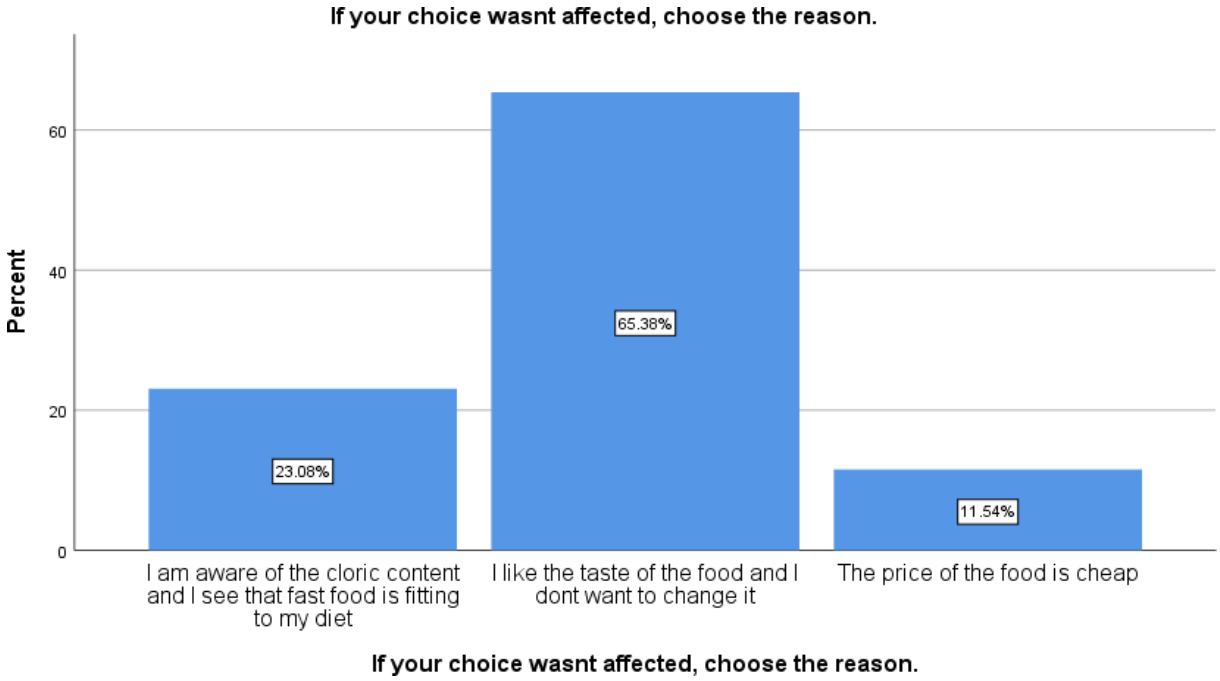

Figure 6. The reasons preventing people from changing their fast-food consumption habits.

Table 2. The public's perception of nutritional labels.

Nutritional Labels Perception		
Variable	Data	Percentage
Do you look at fast food nutritional labels?	Yes	44.1%
	No	55.9%
Do you think that adding food nutritional labels to fast food restaurants is beneficial?	Yes	80%
	No	20%
Do you think that food labels should be implemented in fast food restaurants?	Yes	87%
	No	13%
What do you care about the most when reading nutritional labels of food?	Proteins	34%
	Carbohydrates	22%
	Fats	48.1%
	Calories	28.6%

4. Discussion

Although the residents of the UAE seemed to have positive attitudes towards nutritional labels for fast food, their knowledge was comparably lacking and should be improved to increase awareness regarding the importance of nutritional labeling. This can be achieved using social media and awareness programs in schools to educate the younger population. The correct caloric content of foods that are thought to be healthy, like chicken Caesar salad was identified by the least number of participants, where only 31.9% of participants correctly identified its true caloric content. This means that awareness should be raised regarding the true caloric contents of foods which many people would consider healthy and low in calories. Our results show that a few percent of the participants were able to link fast-food consumption to headaches and kidney diseases. Therefore, the public needs to be educated about various diseases and harms that can be caused by the consumption of fast foods, other than the commonly known ones such as heart disease, diabetes, and obesity. Nutritional labels should be applied in restaurants in general, as well as in schools and workplace cafeterias. Lack of time can affect dietary choices, so lunch breaks for students and workers should be elongated to help them make more health-conscious decisions. The practices regarding the use of the nutritional label were lower than expected, so this requires finding new creative ways to increase the use of those labels, such as making them colorful or adding a promotion code next to them to attract attention.

A study conducted in New York in 2008 among 1188 subjects found that the number of subjects seeing nutritional labels changed from 25% to 64% after implementing a health code regulation requiring fast food chains to display the caloric content of fast food on menus and menu boards [9]. In our study, 44.1% of the subjects look at nutritional labels. This percentage may be increased by applying similar regulations to fast food restaurants in the UAE. The study concluded that the implementation of caloric information on menu boards increases the number of people who see and use this information [9]. Another study conducted in New York in 2011 found that only 15% of the subjects were able to identify the correct caloric content of fast food. This number was increased to 24% after the implementation of nutritional labels [10]. A study conducted among university students in India in 2017 found that 68.13% of the subjects had adequate knowledge about the diseases and harms associated with fast food consumption, compared to 53.5% in our study [11]. This further solidifies the need to raise awareness about harms and diseases associated with the consumption of fast food.

5. Conclusions

The UAE population has inadequate knowledge about the nutritional and caloric information of fast food. Additionally, the UAE community has inadequate knowledge about the harms and diseases associated with fast food consumption. Most of the population believes that nutritional labels should be implemented in fast food restaurants, however, a low percentage of the UAE population reads nutritional labels. Therefore, nutritional labels should be clear and easily visible to make reading them easier and more convenient for customers. The public needs to be more aware about the nutritional content of fast food and harms and the diseases associated with its consumption through educational campaigns and social media. Implementing nutritional labels in fast food restaurants should be mandatory to raise nutritional awareness.

Authors' Contributions

OA and HA wrote the first draft of this manuscript. AA, NA, and HD contributed to questionnaire writing and manuscript editing. AH supervised and critically appraised

the writing of the manuscript. All authors contributed to data collection and agreed on the final version of this manuscript.

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Conflicts of Interest

None

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