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KNOWLEDGE, ATTITUDE AND AWARENESS OF SAUDI ADULTS REGARDING ORGANIC FOOD

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ABSTRACT

While organic food is gaining popularity worldwide, organic food consumption is still a concern in the Kingdom of Saudi Arabia (KSA) due to the small percentage of consumers purchasing such products regularly. The aim of this study was to explore knowledge and awareness of and attitudes toward organic food. This was a cross-sectional study conducted in Madinah, KSA. Considering the significant role of consumers' awareness of organic food consumption and healthy food choices, 1200 participants (54% were female) were interviewed while shopping in three different hypermarkets using a self-report questionnaire. The study indicated that 80% of the participants had heard about organic food, that 65% of them had consumed organic food and that 69% reported it being difficult to find organic food. Overall, 48% of the participants had purchased organic food, and 57% stated that supermarkets were their preferred venues for purchasing organic food. Fruits/vegetables (39%) and food for children (37%) were most frequently purchased from organic food departments. For 56% of the participants, the high price of organic food products was identified as the main barrier to purchasing such products and also reported that they would consume more if it were easier to find in markets. Regarding the participants' awareness, responses showed that participants viewed organic food as safe, free of pesticides, free of industrial additives and chemical waste, fresh with high nutritional value, and healthy by 44%, 45%, 46%, 43%, 44%, respectively. Lastly, females were more knowledgeable and aware of organic food information than male participants. Although the findings suggest that it is important to enlighten clients about the importance of consuming organic food, these results are subject to replication in different cities in the KSA. Concomitantly, there is a need for strategies to increase awareness among adults in all segments of society (for example, family, university, and community) about the nutritional aspects of organic food to promote healthy lifestyles and obtain the corresponding substantial health benefits.

Key words: Organic Food, Knowledge, Attitudes, Awareness, Consumption, Food Choices, Health, Adults

INTRODUCTION

Over the last few decades, rapidly changing trends in current patterns of food consumption have been identified. These have risen in part due to the widespread prevalence of chronic diseases and other diseases not known in past centuries [1-2]. Consumers have become more aware of and interested in foods of sufficient nutritional value and that are free of substances that cause health problems in the near and long term.

Consumers worry about pesticides in food because it has been reported that industrial pesticides compromise human health and are proven to cause several serious conditions, such as kidney failure [4-5], cirrhosis, liver cancer, and other diseases [6-7]. For this reason, many have turned to the consumption of quality organic food, free of pesticides, chemical residues, and processed additives. [6]. In recent years, many countries have started to implement "organic agriculture" systems, which are production systems in which manufactured compounds such as pesticides, chemical fertilizers, hormones, preservatives, and toxins are not used [8]. Organic farming is a biological system inspired by nature that does not depend on the use of any chemical or hormonal additives. Such "organic agriculture" systems limit further environmental pollution and gradually improve the health of individuals and agricultural conditions over the long term [6]. Organic food products that comply with organic food standards are considered a pillar of health protection and environmental preservation [9] in developed countries in Europe, North America, and Asia/Oceania [10].

In the Kingdom of Saudi Arabia (KSA), organic food products were imported from the United States of America (USA) or the European Union (EU) until domestic organic farming was launched in 2000 [11]. In April 2005, The Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) (an international cooperative organization for sustainable development and international education) supported the Saudi government in the development of its domestic organic agriculture industry. Furthermore, the Saudi Organic Farming Association was launched in 2007 to improve market access and upgrade the sector to develop and provide appropriate recommendations in general and for association members in particular. The Saudi National Organic Logo was also created in 2011 to serve as both a marketing instrument and guide for certified organic operators [11]. The majority of agricultural farmers are located in central Saudi Arabia at the heart of the Qassim and Al Kharj regions. Moreover, specialized organic shops and the largest supermarkets with organic sections are located in large cities such as Riyadh, Dammam, Al Khobar, and Jeddah. Dates and vegetables such as carrots, cucumbers, tomatoes, lettuce, and fodder crops are the main organic food products produced [11].

Although the term "organic food" appears to be well known to a large percentage of consumers, only a small percentage purchase such products periodically [12–14]. Very few studies have been conducted on organic food consumption in Saudi Arabia. Therefore, the main objective of this study was to assess the knowledge, attitudes, and awareness pertaining to organic food across genders for a sample of adults in Madinah, KSA, in 2019.



MATERIALS AND METHODS

A descriptive cross-sectional study was conducted at randomly selected supermarkets in Madinah, KSA, in the spring of 2019. A written consent form was used, and the study was approved by the committee of research ethics at Taibah University. Data were collected from 1200 subjects who agreed to be interviewed at the supermarkets using a questionnaire administered by trained students enrolled in a nutrition course. Data were collected through a structured questionnaire with 5 sections focused on demographic characteristics and consumer knowledge, attitudes and awareness pertaining to organic food. The questionnaire was pilot tested for face validity, and minor modifications were made accordingly. Better nutritional knowledge enables understanding of the benefits of consuming organic food, so after the interviews, the students described the benefits of eating organic food to the participating consumers and why it is more expensive.

The Statistical Package for Social Sciences (SPSS Ins., Chicago, IL, USA) version 25 was used for data analysis. Descriptive statistics were collected to assess the characteristics of the study sample. Frequencies and percentages were used to describe qualitative variables. Pearson's chi-square test was also applied to test for statistical significance where $p < 0.05$ was considered to denote statistical significance.

RESULTS AND DISCUSSION

The present study was carried out to assess organic food consumption and to study consumer awareness of organic food. Data were collected from 1200 adults shopping in selected supermarkets in Madinah. More than 68% of the subjects were between 18 and 25 years of age (Table 1). Most of the subjects were students or had an undergraduate degree (64%), (66%) were unmarried, (53%) had income levels below 5000 Saudi Riyale and (69%) were living with more than four family members. Significant associations were observed between gender and all the demographic characteristics considered in the questionnaire. A slightly larger proportion of the participants were female (54%), and they were more knowledgeable and aware of nutrition information than the male participants. This result is in agreement with the findings of studies of Middle Eastern [14-15] and Western countries suggesting that females consume more organic food than males [16-19].

The analysis of consumer knowledge regarding organic food is shown in Figure 1. Approximately 80% of the subjects had heard about organic food, and approximately 65% had consumed organic food. In total, 31% of the subjects reported that it was easy to find organic food in Madinah markets. However, 69% reported that it was hard to find organic food in Madinah.

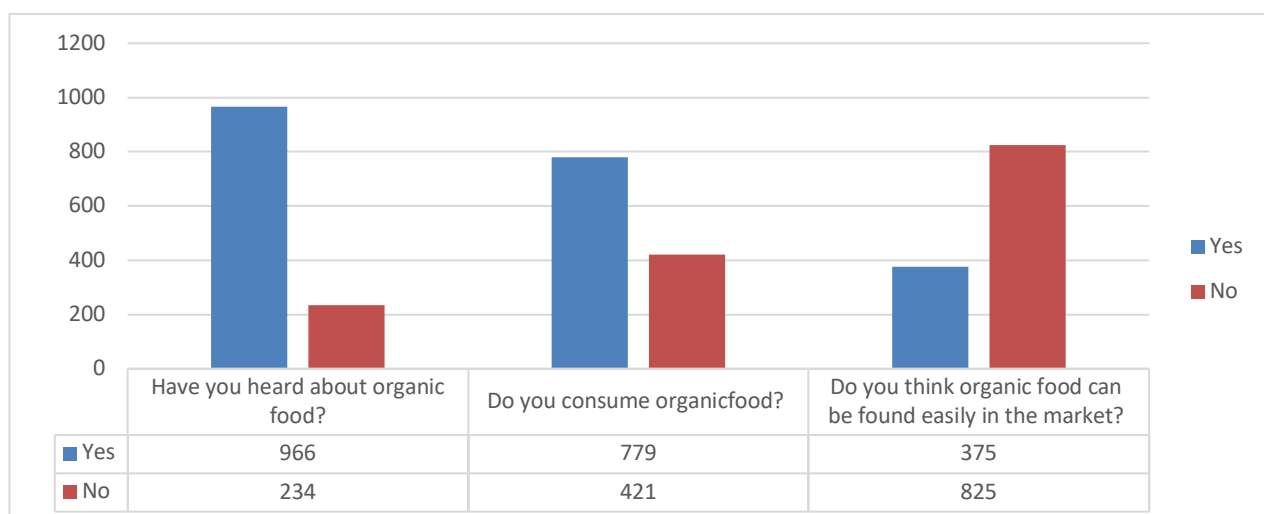


Figure 1: Participants' Knowledge Regarding Organic Food

When the subjects interviewed were asked about their attitudes regarding organic food (Table 2), 56% stated that they did not purchase organic food, and approximately 29.3% reported purchasing organic food every one to two weeks. Approximately 27% stated that they had started purchasing organic food within the last five years. Furthermore, 57.3% of the subjects had purchased organic food from supermarkets, and approximately 38% had purchased organic fruits and vegetables. The findings of this study are consistent with those reported by studies conducted in different countries [14, 20–23]. This high consumption of fruits and vegetables may be attributable to the fact that farmers in KSA are encouraged to grow these crops due to the country's limited water resources, rendering these two products the top organic foods grown in the kingdom. Moreover, the only pilot GIZ organic farming system in Madinah produces dates, citrus fruits, almonds, barley, and honey [11]. More than half of the subjects cited the high price of organic food products as the main barrier to purchasing organic food. According to the founder and CEO of Al Mahalliah Company, one of first companies to supply organic food in Saudi Arabia, the sales prices of organic food products are expected to drastically decrease by up to 50% with a strong increase in organic food sales in the coming years cite. Similar results found that in the KSA and the United Arab Emirates (UAE), the high price of organic food is the main barrier to organic food consumption in addition to a lack of information and poor marketing for such products [12–14], [24–25]. The high cost of organic food can be attributed to the following: organic food supplies are limited relative to those of other foods; production costs for organic foods are typically higher due to higher labor inputs per unit of output; and since smaller enterprises prohibit economies of scale, the postharvest handling of relatively small quantities of organic food results in higher costs due to the mandatory segregation of organic and conventional produce; shelf displays and storage in supermarkets for organic food products are relatively inefficient, and associated costs are higher due to the relatively small volume of organic food products [11, 26].

Furthermore, 66% of the subjects stated that they would consume more organic food if it were more easily available in markets, and 34% reported that they would do so if a wider variety of organic food products were available. In the KSA, supermarkets are

the main venues in which organic food products are sold, especially in hypermarkets such as Carrefour and other local hypermarkets such as Hyperpanda, Danube, and Mandarin. All of these markets include special organic sections for local and imported organic foods [11], particularly for fruits and vegetables.

In terms of the subjects' awareness of organic food (Table 3), most of the participants identified organic food as safe (44%), free of pesticides (45%), free of industrial additives and chemical waste (46%), fresh with high nutritional value (43%), and healthy (44%). Associations between gender and awareness were found to be significant (<0.001). Over half of the respondents exhibited one of two views on organic food. Forty-five percent viewed organic farming as safer for the environment, as lessening the reliance on pesticides and industrial additives and the generation of chemical waste, and as producing fresh, healthy produce of high nutritional value, as indicated by the USDA's Agricultural Marketing Service (2014). These results are consistent with previous studies conducted in the UAE [14] and in other countries [13, 27–28]. Concomitantly, some participants held negative views of organic food and reported viewing organic food as unsafe (38%), as including more pesticides (38%) and industrial additives (46%), as generating more chemical waste, and as unhealthy (44%). Similar studies report similar results for areas of the United Kingdom (UK) [29] and Australia [30]. The results highlight a need to increase awareness of the importance of organic food consumption, develop targeted strategies, and coordinate efforts at the family, school and university, community, and government levels to motivate people to consume more of these products due to their health benefits.

CONCLUSION

More work is needed to raise consumer awareness of organic food through increasing self-awareness to help people set and achieve their goals, make sound decisions, improve their skills and relationships, and cultivate a sense of following a healthy diet that leads to a healthy lifestyle. Thus, consumers of organic food generally tend to have healthier lifestyles. Promoting on social media or holding an event such as a supermarket campaign are ways to increase people's awareness to highlight how organic food consumption can prevent the development of chronic diseases and why these foods are more expensive.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.



Table 1: Demographic Characteristics (N= 1200)

Variables	Male 558 (46%)	Female 642 (54%)	Total 1200	p-value
Age				
18-25	271 (33.5%)	541 (66%.5)	812	0.001
26-45	243 (80%)	63 (20%)	306	0.001
>45	44 (54%)	38 (46%)	82	0.001
Material status				
Unmarried	238 (57%)	168 (43%)	794	0.001
Married	320 (40%)	474 (60%)	406	0.001
Education levels				
High school	89 (58%)	63 (42%)	152	0.001
College	389 (41%)	551 (59%)	940	0.001
Undergraduate	80 (74%)	28 (26%)	108	0.001
Occupation				
Student	282 (36%)	492 (64%)	774	0.001
Employment	127 (55%)	105 (45%)	232	0.001
Retired	149 (77%)	45 (23%)	194	0.001
Income in Saudi Riyale				
≤4999	276 (43%)	361 (57%)	637	0.001
5000-9999	115 (40%)	169 (60%)	284	0.001
≥10000	167 (60%)	112 (40%)	279	0.001
Number of family number				
1-2	58 (51%)	56 (49%)	114	0.001
3	39 (33%)	79 (67%)	118	0.001
4	89 (65%)	47 (35%)	136	0.001
More than 4	372 (45%)	460 (55%)	832	0.001

Table 2: Participants Attitude Regarding Organic Food

	Male	Female	Total	p-value
Where do you usually purchase organic food?			1200 (100%)	0.001
No purchasing	288 (43%)	384 (57%)	672 (56%)	
1-2 week	169 (48%)	182 (52%)	352 (29%)	
3-4 weeks	27 (51%)	26 (49%)	53 (4%)	
1-2 months	28 (58%)	20 (42%)	48 (4%)	
3-4 months	42 (71%)	17 (29%)	59 (6%)	
Less than month	4 (24%)	13 (76%)	17 (1%)	
Since when you purchasing organic food?			528 (100%)	0.001
More than 5 years	66 (45%)	77 (55%)	143 (27%)	
3-5 years	70 (62%)	43 (38%)	113 (21%)	
1-3 years	54 (66%)	27 (33%)	81 (15%)	
1 year	8 (18%)	35 (82%)	43 (8%)	
6 months	21 (39%)	34 (61%)	55 (12%)	
1-3 months	19 (40%)	28 (60%)	47 (9%)	
Last month	25 (55%)	21 (45%)	46 (8%)	
Where do you usually purchase organic food?			528 (100%)	0.001
Supermarkets	130 (43%)	173 (57%)	302 (57%)	
Organic food markets	93 (48%)	101 (52%)	194 (37%)	
Organic farms	22 (68%)	11 (32%)	32 (6%)	0.001
What organic food you usually purchase?			528 (100%)	
Fruits/ vegetables	85 (42%)	116 (58%)	201 (40%)	
Grain products	4 (57%)	2 (43%)	6 (1%)	
Spices	7 (52%)	6 (48%)	12 (3%)	
Diary products	4 (32%)	11 (68%)	15 (2%)	
Fats products	13 (63%)	7 (37%)	20 (3%)	
Eggs	18 (71%)	7 (29%)	25 (5%)	
Kids food	102 (52%)	95 (48%)	197 (37%)	
Juices	12 (38%)	22 (62%)	34 (6%)	
Honey and jam	0	18 (100%)	18 (3%)	0.005
What is the main barrier for purchasing organic food?			528 (100%)	
Products are expensive	127 (43%)	169 (57%)	296 (56%)	
Products are not available	74 (48%)	81 (52%)	155 (30%)	
No variety of products	33 (60%)	22 (40%)	55 (10%)	
Others	11 (50%)	11 (50%)	22 (4%)	0.001
I would like to eat more organic food if			528 (100%)	
There is a variety product	70 (40%)	106 (60%)	176 (34%)	
It is easily found in the markets	176 (50%)	176 (50%)	352 (66%)	

Table 3: Participants Awareness Regarding Organic Food

	Male	Female	Total 1200	p-value
Is organic food less harmful?				
Neutral	120 (59%)	85 (41%)	205 (17%)	0.001
Yes	274 (51%)	265 (49%)	539 (45%)	
No	164 (36%)	292 (64%)	456 (38%)	
Does organic food have less pesticides?				
Neutral	98 (50%)	99 (50%)	197 (16%)	0.014
Yes	271 (50%)	273 (50%)	544 (46%)	
No	189 (41%)	270 (59%)	459 (38%)	
Does organic food have fewer chemicals and no additives?				
Neutral	88 (61%)	56 (39%)	144 (12%)	0.001
Yes	252 (50%)	250 (50%)	502 (41%)	
No	218 (40%)	336 (60%)	554 (47%)	
Does organic food have a higher nutritional value?				
Neutral	97 (48%)	102 (52%)	199 (16%)	0.001
Yes	249 (48%)	261 (51%)	510 (43%)	
No	212 (44%)	279 (56%)	491 (41%)	
Are organic foods truly healthier?				
Neutral	103 (59%)	71 (41%)	174 (14%)	0.001
Yes	251 (51%)	239 (49%)	490 (40%)	
No	204 (38%)	332 (62%)	536 (46%)	

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