

VEGANISM & VEGETARIANISM ADOPTION IN EGYPT

Bachelor Thesis



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Preface

I conducted this research to understand the vegan/vegetarian market of my country (Egypt) and to examine whether there is a rewarding outcome from developing a plant based business.

First and foremost, I would like to extend my appreciation to Mrs. Cynthia Akkermans for her enthusiastic encouragement and constructive suggestions throughout the research paper process. As well as Professor Emanuel Anom in helping me to determine the margin of error for my results and adding essential questions to my survey that helped me while analyzing my data. Professor Mike Horwich for helping me with the wording of my surveys' questions and adding more references to strengthen the literature review.

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Summary

Veganism and vegetarianism is a globally growing practice that is becoming of high social relevance. However, Egypt is an overlooked country when it comes to the widely discussed topic of veganism/vegetarianism. There is a lack of statistical analysis as well as plant based food market presence.

The present study aims to provide a quantitative overview about the likeliness of Egyptians to follow a plant based diet while putting into consideration various demographic factors such as age, gender and level of education.

An online survey was conducted and posted on Facebook and WhatsApp groups. 271 (66.4% females) valid responses were received, from those 40 respondents were vegan. Health benefits and concerns over animal welfare were found to be the main reasons to adopt a vegan diet. However, the lack of vegan products in the Egyptian market as well as social pressure seem to be the reason why some vegans might be inclined to quit their diet. Moreover, the main limitations for omnivores to adopt a plant based diet were the enjoyment of the taste of meat (51.08%), lack of knowledge about this diet (14.72%) and low availability of vegan products (9.52%). Regarding demographic factors such as gender, age and level of education, the statistical analysis showed that these factors do not have an influence on the diet followed. However, younger Egyptians with a lower level of education are more likely to follow a plant based diet.

This research can help businesses understand the plant based food market in Egypt and it can also be beneficial for the Egyptian government to make use of the findings to create a local vegan society that increases the awareness on veganism. Future work could investigate neighboring Arab countries in order to create a cohesive marketing database that can be later used in expanding the plant based food market across the Arab region.

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1. Introduction

1.1 Egypt: Consumption Patterns in Relation to Meat and Veganism

"The reason why I turned vegetarian was not to lose weight nor out of being healthier; my main trigger was purely animal welfare; because I used to work in an office that was right next to a butcher and poultry store and I used to see how they locked 50 hens in a very small cage; how they ran out of patience in calming the buffalo before they slaughter it and all these happenings made me imagine how horrible their lives are until one day I was served a chicken at home and I left the table because I imagined the whole scene of her life until it arrived to my plate and I couldn't, and I spent a couple of years not being able to sit on a table when meat is being served, but I overcame this. However, still eating meat will never be a choice for me. Later on; it affected my health positively; I felt lighter, more energetic, happier and contributing to the environment." – An Egyptian vegetarian for 5 years contacted via WhatsApp (Salah, personal communication, 9th March 2020)

In the historic Middle Eastern countries, which now include countries of the Arabian Peninsula, Egypt, Iraq, Syria, Lebanon, Jordan and Palestine, meatless dishes were the food of these populations for ages. Currently, meat is mainly for the aristocrats to show wealth and power in these countries. Middle Eastern restaurants serving the upper and middle classes are following this behavior of aristocrats by offering a substantial number of dishes containing meat on their daily menu. Although low income workers generally follow a meatless diet, meat dishes are always served when a guest visits them even if the host can hardly afford buying it (Salloum, 2012).

Many staple foods of the traditional Egyptian diet are entirely vegan, including 'fuul', a common breakfast dish of mashed fava beans, 'tameyya' (falafel) also made of a fava bean base, and 'koshary', a mix of pasta, rice, and lentils with a spicy tomato sauce. Egyptian starters are also typically vegan or vegetarian (Adams, 2018). However, in Egypt, households that can afford buying meat consume high amounts of animal protein, and the ancient practice of serving several meat dishes when giving a banquet continues to be the tradition (Wassef, 2004). Many Egyptians consume meat at least during one meal a day because they

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believe their daily diet incomplete without meat. When the price of red meat peaked, Egyptians reluctantly started buying chicken (Krajeski, 2010). On the other side, many lowincome Egyptians end up following a vegetarian diet by default which doesn't make them vegetarians or make the concept of vegetarianism likeable (Krajeski, 2010).

Consumption patterns in Egypt are also influenced by religion. As an Islamic country, during Eid El Adha (the feast of the sacrifice), millions of animals are slaughtered in the streets in honor of the willingness of the prophet Ibrahim to kill his son Ishmael. Some people think that avoiding meat is going against Islam and for vegans/vegetarians that causes distress (Kingsley, 2014). On the other hand, it is estimated that 10 percent of Egyptians practice the Coptic faith, who fast 210 days throughout the year and it's called "seyami". This fast is essentially pescatarian, with no meat or dairy products allowed, with the exception of fish (Accino, 2019).

A wide array of reasons arises when considering why consumers might/might not adopt a vegan/vegetarian diet. Individuals might differ from one another when deciding whether to follow or not a plant based diet. Each person develops a motivation/limitation reflecting their personal beliefs and social norms, some of which include religion, ethical motivation, health, environmental conservation, economic factors, dislike of meat, and culture (Sawe, 2019). Therefore, it becomes interesting for vegan/ vegetarian businesses, entering new markets, to understand what triggers consumer's motivation to buy vegan/vegetarian products and how it differs from one culture to another. This will help businesses to position their products in accordance with customers' preferences. Although, the Egyptian cuisine is packed with plant based dishes, Egypt is not one of the top 10 countries which follow vegan/vegetarian diet (Sawe, 2019). With a population of 101 million people, it can be an interesting new market for vegan/vegetarian businesses to enter (Worldometer, 2020). As described above meat is part of Egypt's cultural identity. The next section will discuss meat consumption in different countries including Egypt and the dilemmas caused by that behavior.

1.2 Meat Consumption & Associated Issues

The increased meat consumption per capita and global population growth has resulted in an overall increase of global meat production and consumption (Vranken, Avermaete, Petalios,

& Mathijs, 2014). One of the strongest indications of how much meat people eat is how rich they are. In fact, meat consumption is highest across high-income countries, with the largest meat-eaters in Australia, consuming more than 120 kilograms per person in 2017. The average European and North American consumer consumes annually nearly 80 kilograms and more than 110 kilograms, respectively. At the other end, many of the world's poorest countries eat less meat as shown in figure 1 (Ritchie & Roser, 2020).



Source: UN Food and Agriculture Organization (FAO) OurWorldInData.org/meat-production • CC BY Note: Data excludes fish and other seafood sources. figures do not correct for waste at the household/consumption level so may not directly reflect the quantity of food finally consumed by a given individual.

Figure 1, Meat Consumption per Person Worldwide (Ritchie & Roser, 2020)

In addition, the share of meat consumption in emerging countries and developing countries is growing rapidly because of increasing economic growth. According to FAO projections, meat consumption in these countries may increase from an average annual per capita consumption of 10 kg in the 1960s to 26 kg in 2000, reaching 37 kg around the year 2030. This forecast suggests that in a few decades, developing countries' consumption of meat will move towards that of developed countries where meat consumption remains at a high level (Vranken, Avermaete, Petalios, & Mathijs, 2014).

With respect to Egyptians, they prefer beef to other types of meat (poultry and lamb) and favor fresh over frozen beef for cultural and religious reasons. Foreign Agriculture Service in

Cairo forecasts Egypt's beef consumption in 2020 to reach 720,000 Metric tons, up by 3.5 percent or 25,000 MT greater than the USDA official 2019 estimate of 695,000 MT due to the increase in population growth combined with continued arrival of regional refugees, and an increase in tourism numbers (Global Agriculture Information Network, 2019).

Nowadays, meat consumption is raising concerns about the environment as it was discovered that agriculture today accounts for one-third of global greenhouse gas emissions. Half of those agriculture emissions come from animal agriculture, which produce large amounts of methane gas (Premack, 2016). The U.N. Convention to Combat Desertification stated that using land to grow crops to feed animals is inefficient: feeding a person on a plant based diet almost requires 20 times less land than to feeding a meat-eating person. In terms of water required by a single cow, it drinks up to 189 liters of water per day, and double that amount in hot weather. Additionally, the USGS Water Science School identified that about 1750 L of water are required per 113 g of beef (Alvaro, 2017).

On the other hand, some people are trying to find ways to reduce their negative impact on the environment by switching to a plant based diet or reduce their meat consumption. In the coming section, vegan/vegetarian diet is explored through different dimensions.

1.3 Vegan/vegetarian Diet

Throughout the last decades, there has been an increasing interest of being vegan and vegetarian worldwide (Christopher, Bartkowski, & Haverda, 2018). Each person follows different types of plant based diet and they can be called vegetarian (also known as a lacto-ovo-vegetarian) diet, vegan, semi-vegetarian, lacto-vegetarian, ovo-vegetarian, pescatarian. The definition of a vegetarian is one that abstains from eating meat, fish, and fowl. Pescatarians do not eat meat or fowl, but will eat fish. Vegans do not consume any animal products. A lacto-vegetarian is a type of vegetarian who does not eat any type of meat or eggs, but still consumes dairy products. The opposite is an ovo-vegetarian, a vegetarian who eats eggs, but not dairy products (Corrin, 2017). In this thesis, the term "vegetarian" will be used to describe all types of vegetarian diets above with the exception of a vegan diet.

Although a small proportion of the population is following a vegan/vegetarian diet, there is a reason to believe that their impact on the food industry and overall consumption patterns will continue to grow (Radnitz, Beezhold, & Dimatteo, 2015). Moreover, there is a larger number of people who get inspired to eat less meat or other animal products or would like to reduce their consumption in the future. For instance, in 2014, only 1% of the American population categorized themselves as vegan. In 2017, that figure increased to 6% (Bourassa, 2019). In the UK, as stated by The Vegan Society reports, there were about 600,000 vegans in 2018, which is approximately 300% more than that of 2014 (The Vegan Society, 2020). In Africa, South Africa created a vegan society to create awareness regarding the vegan lifestyle and to ensure that it is accessible, enjoyable and sustainable for all South Africans (South African Vegan Society, 2020) as the number of South African people searching via Google on vegan topics was inclining in 2019 (Axworthy, 2019).

According to the growing trend of following a vegan/vegetarian diet, a noticeable selection of plant based products have become available at grocery stores. Consequently, the global vegan milk market which was worth over 8 billion US dollars in 2016, is expected to surpass \$21 billion by 2024 (Ahuja & Rawat, 2019) and the global vegan meat market is currently growing steadily and is estimated to reach \$7.5 billion by 2025 (Vig & Deshmukh, 2019). Furthermore, restaurants, public events, and fast food chains are trying to meet this niche market demand as well as the enormous amount of news and documentaries published about the topic that influences people to start following a plant based diet (Wescombe, 2019). For example, one of the most recognizable fast food chains (KFC) replaced all chicken menu items and used vegan and vegetarian meat alternatives for one week in Rotterdam's branch, The Netherlands (Starostinetskaya, 2020). And the world's largest pizza chain Pizza Hut stated that they will introduce more vegan items on the menu within the United Kingdom, as there is an increasing consumer demand for plant-based food (Ho, 2020).

1.3.1 Motivations to Follow a Plant Based Diet

Animal Welfare

Firstly, with regards to animal welfare, vegan/vegetarian consumers are mainly aiming for acknowledging animal rights to live a peaceful life with more freedom and less suffering. This mainly supports the idea of preventing animal exploitation, especially with the rise of other proteins' alternatives that can be adequate replacements to animal's protein (Ruby, 2012). A German study in 2014 showed that the majority of their test persons, who were German consumers that follow a plant based diet, opt for a vegan/vegetarian diet mainly for animal welfare related reasons (Janssen, Busch, Rödiger, & Hamm, 2016).

Health Benefits

Another reason consumers might be adopting a vegan/vegetarian diet is the health benefits that can be obtained from a plant based diet. These health benefits can range from reduced chronic diseases, diabetes, and obesity conditions. This creates a potential for consumers to follow a healthier life style, which could eventually increase chances of longevity. Plant based diets allow consumers to replace food high in fats and cholesterol with healthier options as fruits, vegetables, and nuts that fuel the body with the needed nutrients ranging from Vitamins E and C, potassium and magnesium (Craig, 2009) (Key, Appleby, & Rosell, 2006) (Fuhrman & Ferreri, 2010).

Environmental Concerns

The environment is being damaged in some regions, because of meat consumption as it contributes to global warming, widespread pollution, deforestation, land degradation, water scarcity and species extinction. Live stock's feed production uses a substantial amount of land, energy and water to produce the final products sold at the supermarkets (Happer & Wellesley, 2019).

1.3.2 Limitations to Follow a Vegan/Vegetarian Diet

On the other hand, there are barriers for the majority of people to adopt and maintain a vegan/vegetarian diets such as the lack of social support, particularly from close friends and family members, has been established to be a main factor for giving up eating a vegan/vegetarian diet (Ruby, 2012). Other reasons identified by researchers include enjoyment of the taste of meat (Graca, Calheiros, & Oliveira, 2015), identification with masculine characteristics (Rothgerber, 2013), the denial of animal suffering (Bastian, Loughnan, Haslam, & Radke, 2012), and a general worry about overall health (Lea & Worsley, 2001).

Social Support

Dietary choices are factors of ones' identity, food and food consumption are the main actors of socialization and social interaction. Consequently, social support is crucial not only to follow but also to maintain a vegan diet (Asher & Cherry, 2015). A study stated that those

who have recently become vegan often report being questioned by omnivores, including family and friends (McDonald, 2000). Such questioning is often accompanied by doubting of vegan identities as illegitimate or a temporary phase. This negative attitude commonly results in vegans experiencing stressed social relationships with non-vegans, characterized by the refusal of non-vegans to provide or try vegan dishes. This strain may result in lost friendships, reduced contact, and exclusion from social activities; thus, the social costs of veganism can be relatively high (Twine, 2014).

Furthermore, there is a considerable literature on the effect of social environment on food choices. Culture and religious backgrounds may require some food choices or avoidances. For example, the ahimsa concept (no injury to living creatures) is a basic belief of religions such as Buddhism (Lau, Krondl, & Coleman, 1984). On the other side, there are religions such as Islam, where meat is a pivotal point of its dietary laws; consumption of halal meat is encouraged and celebrated in Islam, with ritual slaughter and the distribution of meat to charity a significant expression of faith (Adams, 2018).

Enjoyment of the Taste of Meat

One of the prominent perceived barriers of adopting a vegetarian diet is the enjoyment of eating meat. A previous study found evidence for people's attachment to meat, including enjoyment and pleasure in taste, as predictive of meat consumption (Graca, Calheiros, & Oliveira, 2015). As a result, a company called Beyond Meat belief that the best way to reduce the amount of people eating meat is by giving them more of what they love, without the health, sustainability, and animal welfare costs of animal-based meats. Therefore, they offer a plant-based burger that looks, cooks, and satisfies like beef. And they are working on producing chicken strips that will contain the exact chicken's features (Beyond Meat, 2020).

The determined 'meat is masculine' idea may encounter men to follow a vegetarian diet. This strong relationship between men and meat makes men less willing to reduce their meat consumption. Moreover, the promotion of meatless or meat-reduced diets focusing on health and ecological issues does not influence a large proportion of men, because they fear to lose their masculine identity (Rothgerber, 2013). Compared to female vegetarians and vegans, male vegetarians and vegans are evaluated more negatively. Masculinity maintenance is one factor that contributes to gender differences in meat consumption and health gaps related to overconsumption of meat (Nakagawa & Hart, 2019).

Health Concerns

Women tend to have more health and convenience concerns than men. The prominent barriers for women to adopt a plant based diet included believing that plant based diets lack sufficient iron and protein, lack of knowledge about vegetarian diets (Lea & Worsley, 2001), and a perception that vegetarian diets were nutritionally unbalanced (Povey, Wellens, & Conner, 2001).

1.4 Veganism/vegetarianism in Egypt

In this paper, the scope will be on Egyptian consumers in relation to a plant based diet; no research effort has yet been dedicated to exploring a country like Egypt which is an African, Arabian, and Middle Eastern country in order to examine peoples' motivations and limitations of following a plant based diet, thus it will add value to the literature of an overlooked country and reflect the status of similar countries in the region.

The main question of this research is:

How likely are Egyptians to follow a vegan or vegetarian diet?

Connected to the main question, the following sub-questions were formulated:

- How do demographic factors such as age, gender, religion, location, and education impact vegetarianism/veganism adoption in Egypt?
- What are the main factors for Egyptians to be or become vegan/vegetarian?
- What are the main factors for Egyptians to not adopt a vegan/vegetarian lifestyle or to stop having a vegan/vegetarian lifestyle?

The objective of this research is to define the main motives and limitations of following a plant based diet in Egypt. Additionally, it will help food companies to understand the Egyptian market and to market its products effectively. According to a study conducted at seven specialized vegan supermarkets across five German federal states, it seemed favorable to include the phrase that 'no animals were harmed' on product packages,

advertisements, and promotional material. Likewise, companies can target consumers seeking a healthy diet, consumers interested in reducing the environmental impact of their diet, or both (Janssen, Busch, Rödiger, & Hamm, 2016). Additionally, the Egyptian government can use this data to create a local vegan society focusing on online awareness, public outreach, development and distribution of resources, product and service endorsement as well as providing support and guidance for those who choose the vegan lifestyle.

2. Materials and Methods

In this research, a quantitative methodology was chosen as the goal of this study was to examine the motives and limitations of following a vegan/vegetarian diet in Egypt from a large number of respondents, who do/do not follow a plant based diet. Moreover, it is considered that quantitative research provides a high level of reliability and eliminate or minimize subjectivity of judgment (Kealey & Protheroe, 1996).

2.1 Research Design

Sub-questions were answered by conducting a survey, with a questionnaire format. A questionnaire was used to collect data and analyze it more scientifically and objectively than other forms of research (Kabir, 2016). The questionnaire was designed via Google Forms in both Arabic and English language as shown in appendix 1. Questionnaires have advantages and disadvantages as data collection tools. Primarily, its advantages are that enormous amount of information can be collected from a large number of people in a short period of time at a relatively cost-effective way, and when data has been collected, it can be used to compare and contrast other research and may be used to measure change. On the other hand, questionnaires have some drawbacks. For instance, people may understand each question differently and therefore reply based on their own interpretation of the question (Kabir, 2016).

In the previous chapter, three sub-questions were formulated and below the correlation between sub-questions and the survey questions is described:

'How do demographic factors such as age, gender, religion, location and education impact vegetarianism/veganism adoption?'

This question was to identify how demographic factors may affect the adoption of a plant based diet and was connected to the survey questions about living in a city or countryside (question 2) gender (question 3), age (question 4), level of education (question 5), religion (question 6), diet (question 7), and asking about the potential for non-vegans/vegetarians to adopt a plant based diet (question 13).

'What are the main factors to be or become vegan/vegetarian?'

The above sub question was to understand the prominent factors of adopting a plant based diet and was connected to survey questions asking the motivation of a person to become vegan/vegetarian (question8), asking about the place that they buy their plant based products from (question 10), and asking the motivation of a person to start following a plant based diet (question 11).

'What are the main factors to not adopt a vegan/vegetarian lifestyle or stop having a vegan/vegetarian lifestyle?'

This question was to help determining the limitations that affect consumer decision to adopt a plant based diet and to stop being vegan/vegetarian and it was answered by asking about the reason to quit veganism/vegetarianism (question 9), and asking about the limitation of a person to become vegan/vegetarian (question 12).

Procedure

This survey aimed to receive a minimum of 250 valid respondents with a 95% confidence interval. Moreover, it aimed to have a rational proportion of males/females, plants based dieters/non-plant based dieters and demographic factors to show validity of the collected data.

The questionnaire was distributed via social media (Facebook/WhatsApp) and posted on Facebook groups that follow a vegan/vegetarian diet such as "Vegetarian/Vegan Society of Egypt" and "Plant Based Diet Egypt" which were the most followed Egyptian groups for this topic at the time of research. Before posting the questionnaire, a permission was asked from the groups' administrators and a summarized description of the study was added to the request so as to avoid going against the groups' rules and to avoid being considered as a spam or unwanted post.

Valid respondents were 18 years or older and Egyptians living in a city or countryside who followed or did not follow a vegan or vegetarian diet, it was determined by asking them about their age (question 4), nationality (question 1), and if they live in a city or countryside (question 2). Additionally, the participant needed to have access to a computer/tablet or smartphone and the questionnaire was available in both languages, Arabic and English to be clearly understood by respondents.

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2.2 Data Analysis

Data analysis was done via SPSS. The independent variables were the demographic factors age, gender, religion, and educational level. The dependent variables were the type of diet followed, the limitations and motivations that became a subject of changes brought by the people adopting/not adopting a plant based diet. Data was put in graphs such as bar charts to visually illustrate relationships in the data. The data was analyzed using diverse tests such as Chi Square test, Spearman Correlation test, and Kruskal-Wallis H test to examine the relation between the independent and dependent variables.

3. Results

The survey was distributed among consumers in Egypt via WhatsApp and Facebook for one week. The number of respondents reached 300 but 29 were eliminated as they were not Egyptians according to their answers to the question 'what is your nationality?'. Thus, the sample size was 271. Additionally, to reach more Egyptian vegans/vegetarians respondents, another group on Facebook called "Egyptian Vegans" was contacted to enhance the validity of results.

3.1 Demographic Data

From the 271 respondents, the majority were female (66.4%, n = 180) and the rest were male (33.6%). Table 1 shows the division of respondents over the different age categories. The majority (47.6%) of the respondents were between 18 and 24 years old, 27.7% of the respondents were 25-35 years old, 15.9% were 35-49 years old, 7.7% were 50-64 years old and above 65 years only a limited number of persons participated (1.1%).

Table 1, Participants by age group

		Frequency	Percent
Valid	18-24 years old	129	47.6
	25-35 years old	75	27.7
	35-49 years old	43	15.9
	50-64 years old	21	7.7
	>65	3	1.1
	Total	271	100.0

The participants were asked about their religion/spiritual beliefs. As an Islamic country, the results indicated that 92.62% of the total participants are following the Islamic religion. A small proportion indicates to be Christian/Catholic (6.3%) or atheist (1.1%). Due to the limited amount of responses of religions other than Islamic, religion/spiritual beliefs will not be compared to other variables. Additionally, they were asked whether they live in a city or countryside, but only two respondents were from countryside and the rest were from a city. Therefore, this variable will not be compared to other variables.

The participants were also asked about their educational level completed/to be completed (Table 2). The results showed that 76.4% (n=207) of the total respondents have completed/will complete a bachelor's degree. And 11.4% have completed/will complete a

master's degree. Other education levels represented a smaller proportion of total participants.

Table 2, Level of education of participants

		Frequency	Percent
Valid	Less than a high school diploma	3	1.1
	High school degree or equivalent	20	7.4
	Bachelor's degree (e.g. BA, BS)	207	76.4
	Master's degree (e.g MA, MS, Med)	31	11.4
	Doctorate (e.g. PHD, edD)	10	3.7
	Total	271	100.0

Table 3 shows the diet followed by respondents. Overall, 85.2% (n=231) of the participants were omnivores and the rest (n=40) were a combination of different vegetarian and vegan diets.

Table 3, Diet followed by participants

Valid	Omnivore; eats both plants & meats	231	85.2
	Pescatarian; do not eat beef or chicken, but eats fish	16	5.9
	Vegan; do not consume any animal products	20	7.4
	Lacto-vegetarian; do not eat any type of meat or eggs, but still consumes dairy products	3	1.1
	Ova-vegetarian; eats eggs, but not dairy products	1	.4
	Total	271	100.0

3.2 Veganism & Vegetarianism Adoption in Egypt

In order to answer the first sub question 'How do demographic factors such as age, gender, religion and education impact vegetarianism/veganism adoption?' and determine the correlation between each demographic factor and the decision of following a plant based diet, the subsequent results were attained.



Figure 2, Comparing gender to diet followed (not merged)

In figure 2, gender and different types of diet were compared. For statistical analysis, all types of vegetarian diets' variables and vegan diet's variable were merged into one variable.

Gender of the respondents following omnivore diet and merged plant based diets was analyzed. Table 4 shows that 90.1% of the total males (n=91) followed an omnivore diet and the rest followed a plant based diet. But for females 82.8% of the total females (n=180) followed an omnivore diet while other female respondents were following a vegan/vegetarian diet.

			Diet	Diet Followed			
			Omnivore	Vegan/Veget arian	Total		
Gender	Male	Count	82	9	91		
		% within gender	90.1%	9.9%	100.0%		
	Female	Count	149	31	180		
			% within gender	82.8%	17.2%	100.0%	

In order to test whether there is an association between gender and the type of diet followed, the Chi-Square test was used. Null hypothesis is that there is 'no association': gender does not matter for the type of diet followed. Alternative hypothesis is that there is 'association': one gender is more likely to follow a specific diet. As shown in appendix 2 table 15, the p-value is higher than the chosen significance level (0.05); therefore, the null hypothesis was not rejected. There was no association between gender and type of diet followed. Age categories were analyzed in relation to the diets followed by respondents in table 5. For the age range 18-24 years old, 85.3% of that age range total (n=129) followed an omnivore diet and the rest adopted a plant based diet. For 25-34 years old, 77.3% of that age range total (n=75) followed an omnivore diet. For 35-49 years old, 90.7% of that age range total (n=43) were omnivores, and >50 years old (n=24) all followed an omnivore diet.

			Diet		
			Omnivore	arian	Total
Age	18-24 years old	Count	110	19	129
		% within age	85.3%	14.7%	100.0%
	25-34 years old	Count	58	17	75
		% within age	77.3%	22.7%	100.0%
	35-49 years old	Count	39	4	43
		% within age	90.7%	9.3%	100.0%
	50-64 years old	Count	21	0	21
-		% within age	100.0%	0.0%	100.0%
	>65	Count	3	0	3
		% within age	100.0%	0.0%	100.0%

Table 5, Analyzing age in relation to diet followed

Additionally, to test if there was a correlation between age and the type of diet followed, Fisher's Exact test was used as an alternative to a Chi-Square test. Because 30% of the cells have expected count less than 5 which may cause Chi-Square test to be inaccurate. As shown in appendix 2 table 16, the value of Fisher's Exact test statistic was 8.421. This results in p value of 0.063, as a result it would not be considered significant (given an alpha level of 0.05). Therefore, there was no association between age and type of diet followed.

Levels of education were analyzed in relation to the diets followed by participants. As displayed in table 6, 66.7% of the total respondents that acquired a diploma that is lower than high school (n=3) followed a plant based diet, 85% of the total participants that completed/will complete a high school degree or equivalent (n=20) followed an omnivore diet, 86.5% of total respondents that acquired a bachelor's degree (n=207) were omnivores, 83.9% of total respondents that acquired a master's degree (n=31) adopted an omnivore diet, and 80% of doctorate holders (n=10) followed an omnivore diet.

Table 6, Analyzing level of education in relation to diet followed

			Diet		
			Omnivore	Vegan/Veget arian	Total
Education	Less than a high school	Count	1	2	3
	dipioma	% within education	33.3%	66.7%	100.0%
	High school degree or equivalent	Count	17	3	20
		% within education	85.0%	15.0%	100.0%
	Bachelor's degree (e.g. BA, BS)	Count	179	28	207
		% within education	86.5%	13.5%	100.0%
	Master's degree (e.g	Count	26	5	31
	MA, MS, Med)	% within education	83.9%	16.1%	100.0%
	Doctorate (e.g. PHD,	Count	8	2	10
	eaD)	% within education	80.0%	20.0%	100.0%

Fisher's Exact test was used to find whether there was an association between level of education completed/will be completed and type of diet followed. In appendix 2 table 17, it can be seen that Fisher's exact test p value=0.176. The null hypothesis cannot be rejected meaning that there was no association between these two variables.

The participants that mentioned following an omnivore diet were asked about their likeliness to follow a plant based diet on a Likert scale question from 1 to 5, where 1 means 'not at all interested', 2 means 'not very interested', 3 means 'neutral', 4 means 'interested', and 5 means 'very interested'. According to the mean and median as shown in table 7, the respondents were considered not interested in following a plant based diet. Most participants were not interested at all (23.8%) or not very interested (31%) to follow a plant based diet, and 34% were neutral about following a plant based diet. A small amount (7.8%) was interested and 3% were very interested to start adopting a vegan/vegetarian diet.

					Frequency	Percent	
Ν	Valid	231	Valid	Not at All Interested	55	23.8	
	Missing	0		Not Very Interested	72	31.2	
Mean		2.35		Neutral	79	34.2	
Median		2.00			- Internet of	10	7.0
Std. D	Deviation	1.023		Interested	18	7.8	
Minimum		1		Very Interested	7	3.0	
Maxir	mum	5		Total	231	100.0	

Table 7, Likeliness to follow a plant based diet on a Likert scale question

Gender was analyzed in relation to the likeliness to follow a plant based diet. In table 8, 89.5% of the total omnivore female respondents (n=149) were not at all interested to neutral about following a plant based diet, and 89% of the total omnivore male respondents (n=82) were not at all interested to neutral about adopting a vegan/vegetarian diet (n=82).

			Hov	How likely are you to follow a plant based diet?				
			Not at All Interested	Not Very Interested	Neutral	Interested	Very Interested	Total
Gender	Female	Count	35	45	53	9	7	149
		% within gender	23.5%	30.2%	35.6%	6.0%	4.7%	100.0%
	Male	Count	20	27	26	9	0	82
		% within gender	24.4%	32.9%	31.7%	11.0%	0.0%	100.0%

Table 8, Analyzing gender in relation to the likeliness to follow a plant based diet

The Kruskal-Wallis H test was used to determine if there was a statistically significant difference between gender and the likeliness to follow a plant based diet. As shown in appendix 2 table 18, p value was 0.667 and X² was 0.185, which means that there is no significant difference between gender and likeliness to follow a plant based diet.

The responses for each education level were analyzed in relation to the likeliness to follow a plant based diet as displayed in table 9 below. Only one respondent having less than a high school diploma was feeling neutral towards following a plant based diet. 41.2% of the participants that completed/will complete a high school degree or equivalent (n=17) were not very interested to follow a vegan/vegetarian diet, 57% of bachelor's degree respondents (n=179) were not at all interested to not very interested in changing their diet to a plant based one, 50% of master's degree participants (n=26) were not at all interested to not very interested, and 62.5% of doctorates' holders (n=8) were not at all interested.

How likely are you to follow a plant based diet?

			1101	i incery are you o	to ronom a p	and based on		
			Not at All Interested	Not Very Interested	Neutral	Interested	Very Interested	Total
Education	Less than a high school	Count	0	0	1	0	0	1
	diploma	% within education	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	High school degree or	Count	0	7	6	4	0	17
	equivalent	% within education	0.0%	41.2%	35.3%	23.5%	0.0%	100.0%
	Bachelor's degree (e.g. BA, BS)	Count	42	60	59	11	7	179
		% within education	23.5%	33.5%	33.0%	6.1%	3.9%	100.0%
	Master's degree (e.g MA, MS, Med)	Count	8	5	10	3	0	26
		% within education	30.8%	19.2%	38.5%	11.5%	0.0%	100.0%
	Doctorate (e.g. PHD,	Count	5	0	3	0	0	8
	edD)	% within education	62.5%	0.0%	37.5%	0.0%	0.0%	100.0%
Total		Count	55	72	79	18	7	231
		% within education	23.8%	31.2%	34.2%	7.8%	3.0%	100.0%

Table 9, Analyzing level of education in relation to the likeliness to follow a plant based diet

Consequently, in order to analyze the data and measure the strength of association between two ordinal variables, Spearman Correlation test was used. As shown in appendix 2 table 19, there was a negative correlation coefficient between the likeliness for omnivores' respondents to follow a plant based diet and their level of education as correlation coefficient was -0.131 and p value was 0.047 and that means people with higher education were less likely to follow a plant based diet.

Analyzing age in relation to likeliness to follow a plant based diet in table 10, for age range 18-24 years old respondents, 94.6% of that age range total (n=110) were not at all interested to feeling neutral about following vegan/vegetarian diet. For 25-34 years, 77.6% of that age range total (n=58) were not at all interested to neutral. For 35-49 years old, 87.2% of that age range total (n=39) were not at all interested to neutral. For 50-64 years old, 95.2% of that age range total (n=21) were not at all interested to neutral, and >65 years old only had 3 respondents and none of them were interested to follow this diet.

			Hov	How likely are you to follow a plant based diet?				
			Not at All Interested	Not Very Interested	Neutral	Interested	Very Interested	Total
Age	18-24 years old	Count	23	42	39	6	0	110
		% within age	20.9%	38.2%	35.5%	5.5%	0.0%	100.0%
	25-34 years old	Count	9	16	20	8	5	58
		% within age	15.5%	27.6%	34.5%	13.8%	8.6%	100.0%
	35-49 years old	Count	13	6	15	3	2	39
		% within age	33.3%	15.4%	38.5%	7.7%	5.1%	100.0%
	50-64 years old	Count	9	7	4	1	0	21
		% within age	42.9%	33.3%	19.0%	4.8%	0.0%	100.0%
	>65	Count	1	1	1	0	0	3
		% within age	33.3%	33.3%	33.3%	0.0%	0.0%	100.0%

Table 10, Analyz	ng age in	relation to	the likeliness	to follow	a plant	based diet
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In order to determine the correlation between the likeliness for omnivores to adopt a plant based diet and age groups, another Spearman Correlation was conducted in appendix 2 table 20 with a result of small negative correlation coefficient equal to -0.020 and p value of 0.763, which means that there was no association between age and likeliness to follow a plant based diet.

3.3 Main factors of following vegan/vegetarian diet

To find an answer for the second sub-question 'What are the main factors to be or become vegan/vegetarian?', the survey asked the plant based dieters' respondents for the most motivational aspect that triggered them to follow this diet. In table 11, the result was that 47.5% (n=19) of the vegan/vegetarian respondents stated that their main motivation was health benefits followed by concern for animal welfare (37.5%) and environmental impact of meat production (7.5%). Other factors were only mentioned by one person each.

Table 11, Ma	in motivation	for vegetarians	& vegans to	become vegan/v	egetarian
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		Frequency	Percent
Valid	Health benefits	19	47.5
	Concern over animal welfare	15	37.5
	Environmental impact of meat production	3	7.5
	Digust from eating meat and chicken	1	2.5
	Never felt like eating meat or chicken	1	2.5
	Religious/Spiritual beliefs	1	2.5
	Total	40	100.0

Another question with the option of choosing 'other' as a response was included in the survey to determine what would mostly encourage omnivores to start adopting a plant based diet. In table 12, the results were that 74.9% (n=173) of omnivores' respondents may adopt this diet for its health benefits followed by concern over animal welfare (7.8%), religious/spiritual beliefs (6.1%), and environmental impact of meat production (5.2%). 'Never' was written in the 'other' option by 3.5% of total omnivores, while other factors were only mentioned by a few respondents.

		Frequency	Percent
Valid	Health benefits	173 74.9	
	Concern over animal welfare	18	7.8
	Religious/Spiritual beliefs	14	6.1
	Environmental impact of meat production	12	5.2
	Never	8	3.5
	Wanting to follow a food trend	5	2.2
	Christians follow a plant based diet most of the year.	1	.4
	Total	231	100.0

Table 12, Motives for omnivores to follow a vegan/vegetarian diet

3.4 Main Factors for Not Following Vegan/Vegetarian Diet

To answer the third sub-question 'What are the main factors to not adopt a vegan/vegetarian lifestyle or stop having a vegan/vegetarian lifestyle?', two questions were given to the vegan/vegetarian participants, to which they were able to respond about what

would make them quit their diet, where do they buy their products from, and omnivores have been able to choose their limitation to not adopt a vegan/vegetarian diet.



Figure 3, Main reason that participants would stop having a vegan/vegetarian diet

In figure 3, the x-axis represents the reasons that would make vegan/vegetarian respondents and the y-axis represents the percentage of total respondents. The results were that (22.5%) wrote 'never' in the 'other' option which means that they did not find any reason to stop following that diet, then lack of vegan products (20%) and social pressure from family and friends (17.5%) came next.

In table 13, the following answers to the question 'where do you buy vegan/vegetarian products from?', home preparation and supermarkets had equal percentages (47.5%) each, while only 5% answered that they buy their plant based products from vegan stores.

		Frequency	Percent
Valid	Home preparation	19	47.5
	Supermarkets	19	47.5
	Vegan stores	2	5.0
	Total	40	100.0

Table 13, Where do vegans/vegetarians buy their products from?



Figure 4, Main limitation to become vegan/vegetarian

In figure 4, the x-axis represents the limitations for omnivores to adopt a plant based diet and the y-axis represents the percentage of total respondents. The majority responded that enjoyment of the taste of meat (51.08%) was their main limitation to follow a vegan/vegetarian diet, then lack of knowledge about plant based diet (14.72%), and low availability of vegan food products (9.52%) came next.

4. Discussion of Results

This research was conducted to examine the likeliness of Egyptians to follow a plant based diet in order to help food companies position their products in the market and help the government support its citizens.

4.1 Reflection on the Conducted Research

According to the research plan, the survey was answered by more than 250 respondents in one week, who were approached through WhatsApp and Facebook groups. Vegans and vegetarians' Facebook groups were the most effective way to reach plant based dieters in Egypt in a short period of time as they are still considered a small percentage compared to Egypt's population.

The 271 valid respondents were statistically significant for the entire country population, a 95% confidence interval with a 6% margin of error, which means that the statistics were within 6 percentage points of the real population value 95% of the time, and it was calculated by using SurveyMonkey's margin of error calculator (SurveyMonkey, 2020).

In table 14, the population breakdown of Egypt is compared to the sample's population in order to discuss whether the sample is relevant to the actual population or ended up with a sample at which some people were overrepresented. This is not necessarily a problem, because in the end they might be the correct target group to get an opinion from. It can be observed that the most realistic demographic factor was religion, while for the gender factor, females were overrepresented and males were underrepresented. Moreover, the ages less than 24 years old and more than 65 years old were underrepresented (Countrymeters, 2020). Regarding the level of education, mean years of education in Egypt is 7.1 years on average, which includes primary school. Therefore, the survey had higher educated people than average for Egypt (United Nations Development Programme, 2018).

Table 14, Comparing sample % to Egypt average % (Countrymeters, 2020)

	Sample %	Egypt average %
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Gender		
Male	33.6%	50.2%
Female	66.4%	49.8%
Age in years		
<24	47.6%	58.2%
25-64	51.3%	37.6%
>65	1.1%	4.2%
Religion		
Islam	92.6%	94.9%
Christianity	6.3%	5.1%

Regarding religion, it would have been beneficial to survey a bigger sector of Christians in order to be able to compare the effect of the two most dominant religions in Egypt on veganism and vegetarianism adoption. Since Christians have lots of feasts throughout the year that traditionally and religiously require a special food consumption. For an example, Egyptian Copts fast for 210 days, they are not allowed to eat meat or dairy products with the exception of fish and that is essentially pescetarian (Accino, 2019).

Furthermore, it would have been better to separate the survey into two surveys, one for non-vegans/vegetarians and the other for vegans/vegetarian to avoid having missing values calculated in SPSS tests that may mislead the result, since there were multiple questions for only plant based dieters and for only non-vegans/vegetarians' respondents. In order to solve the problem of having missing value, the data for both types of respondents were separated into two SPSS data sheets.

Moreover, it would have been better for questions 8,9,11, and 12 to include a Likert scale to be able to analyze the importance of the various factors that define individual consumer perception. However, these questions in the conducted survey were in a multiple-choice question format, which allowed the respondent to select only one answer or to type his/her own answer in the 'other' option. Also, the question 'Where do vegan/vegetarians buy their products from?' would have been better if there was a possibility to choose multiple options, because one person may buy and make vegan dishes. Moreover, the question also gave a limited view on market possibilities for vegan products.

Tests used in this thesis were chosen based upon the variables selected and the assumptions required by each test to avoid misleading results and increase reliability.

4.2 Vegetarianism/Veganism Adoption in Egypt

To determine whether demographic factors such as age, gender and level of education have an impact on the diet followed by people or not, different SPSS tests were used depending on the type of variables being examined. Firstly, gender and the type of diet followed were tested for correlation and the type of diet followed did not have an association with gender. A study conducted by Benjamin Allès collected data from 90,664 meat-eaters, 2370 vegetarians, and 789 vegans with a French nationality. It stated that, compared with meateaters, vegetarians were more likely to be women (Allès, 2017). However, as a family oriented country, Egyptian family members eat together, which causes family members to almost follow the same diet (Rostom, 2019). Secondly, age and the type of diet followed were also tested and there was no association between age and following a plant based diet or being omnivore. Thirdly, level of education and the type of diet followed had no association. In conflict with this finding, the study made by Benjamin Allès also determined that vegetarians were more likely to have a higher educational level, whereas vegans had a lower educational level compared to meat-eaters (Allès, 2017). This could be due to the lack of nutrition education in the Egyptian education system and nutrition awareness programs in social development initiatives (Unicef, 2017).

Demographic factors such as age, gender and level of education were tested whether they had an impact on the likeliness for omnivores' respondents to follow a plant based diet. Firstly, gender and the likeliness to follow a plant based diet were tested for correlation and the result was that there is no significant difference between (among) males and females to be interested in following a plant based diet. In conflict with this finding, a study by Christopher J. Bryant, collected data from 1000 U.K meat-eaters. It determined that women tend to have more positive views of vegetarianism and veganism compared to men (Bryant, 2019). The reason behind this discrepancy could be due to the fact that meat does not symbolize masculinity as much as it did before (Backer, 2020), which used to cause more

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women to become vegan/vegetarian (Nakagawa & Hart, 2019). As a modern-day example, Saudi Prince Khaled bin Alwaleed bin Talal is vegan and is nowadays promoting veganism in Saudi Arabia and the Arab world without fearing disgrace (Kavaler, 2019).

Additionally, results of this study showed that when the level of education increases the likeliness to follow a plant based diet decreases. However, the study made by Christopher J. Bryant determined that higher education was correlated with viewing both vegetarianism and veganism as more aspirational, and with increased likelihood to say they would reduce their consumption of meat and animal products (Bryant, 2019). This deviation could be due to age discrepancies between respondents, as master degree and doctorate holders were much older (above 35 years old) than high school and bachelor's degree holders (18-34 years old). Moreover, as stated in a recent survey by vegan company BOL Foods, plant based eating has become mainstream among young people (Bradbury, 2018).

Finally, outcomes of this study showed that as age increases the likeliness to follow a plant based diet decreases. The study Christopher J. Bryant supported this finding as it determined that older participants tended to rate veganism as less aspirational than younger participants (Bryant, 2019).

According to the findings attained by this research, food businesses in Egypt can target any gender but focus more on people who age between 25 to 34 years old and people who had a high school diploma (or equivalent) up until bachelor's degree diploma as these are the groups who are more willing to adopt a plant based diet.

4.3 Main Factors of Following Vegan/Vegetarian Diet

As stated in the literature review that the main motives for people to adopt a plant based diet are health benefits (Craig, 2009) and animal welfare (Janssen, Busch, Rödiger, & Hamm, 2016). The data collected in this study supports both findings: respondents in this study also indicated these two motives as the most important motives to adopt a plant based diet.

4.4 Main Factors for Not Following Vegan/Vegetarian Diet

Most Vegan respondents would certainly not quit their diet regardless of any reason and that they were satisfied with it. Secondly, they also might stop this diet due to lack of its products in the market. The low percentage buying products at vegan stores in table 13 means that there are not enough specialized shops for plant based dieters to buy their products from and that was why lack of vegan products is one of the main factors for Egyptians to stop being vegan/vegetarian. This finding was supported by an interview conducted in Egypt, in which all those interviewed have reported a significant lack of businesses that cater to vegans or those with special dietary needs in terms of both packaged products and restaurants (Abou el Atta, 2018). And lack of social support from family and friends was a main factor for quitting veganism/vegetarianism as in the Egyptian culture, consuming meat is a religious obligation, especially during certain celebrations and not all people will support the fact of not eating meat (Abou el Atta, 2018).

More than half of omnivores responded that their main limitation to start following a plant based diet was due to their enjoyment of the taste of meat, and this result corresponds with the research done that this limitation is one of the main reasons for not adopting veganism/vegetarianism (Graca, Calheiros, & Oliveira, 2015). And corresponds with the book "Food Culture of the World Encyclopedia" that states meat is one of the prized items at the dinner table for Egyptians (Albala, 2011).

5. Conclusions & Recommendations

In the following sections, conclusions and recommendations for this research report will be described.

5.1 Conclusions

In this research, the aim is to examine the likeliness of an overlooked Islamic, African country with a middle eastern background such as Egypt, to follow a plant based diet. The research can later help enrich the literature tackling that matter as well as provide an insight into the status of similar neighboring Arab countries.

To conclude, demographic factors such as gender, age and level of education does not have an influence on the diet followed. Moreover, health benefits and concern over animal welfare are the main motives for vegans and omnivores to follow a plant based diet. Omnivores have three main limitations to follow a vegan/vegetarian diet, which are the enjoyment of the taste of meat, lack of knowledge about vegan diet, and low availability of plant based products. Due to the lack of social support and low availability of vegetarian products, some vegans/vegetarians are concerned about the difficulty of resuming such a diet.

Regarding the likeliness for Egyptians to follow a plant based diet, younger people with a lower level of education are more interested to follow a plant based diet. However, the concept of voluntary vegetarianism is quite foreign and more standard Egyptian logic is "Why would not you eat meat if you can afford it?" (Albala, 2011).

5.2 Recommendations

According to the findings identified in this research, food businesses can examine the potential of entering the plant based food market in Egypt by making use of the findings to market their products and develop new commodities. It is recommended that food businesses focus their marketing strategies on targeting both genders who are 25 to 34 years old and for levels of education starting from high school diploma (and equivalent) up until bachelor's degree.

Based on the motives to follow a plant based diet, businesses can currently start to focus on the health benefits of such diet and advertise their support to animal welfare on their plant based products. To increase the number of vegans/vegetarians, food business can work on providing plant based products with a taste similar to that of meat. Producing and introducing new vegan products will be a long-term process.

As a long-term recommendation, the Egyptian government can create a local vegan society as created by the South African government to fill the gap of knowledge about veganism/vegetarianism and increase awareness. It is recommended that the local vegan society initiative shall target all Egyptians from all social classes in order to make sure everyone is taught about the plant based diet despite social pressure and social status. Additionally, it can support and encourage young companies that will serve the plant based market in Egypt by funding them to help increasing the availability of vegan products.

Future work could investigate neighboring Arab countries in an attempt to cover the Arab region as a whole by examining the influence of demographic factors on Vegetarianism in Arab countries and inspect whether or not there is a documentable correlation between cultural traditions and vegetarianism and use the findings to tailor a plant based food market that targets the Arab Region as a whole.

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Appendix 1. Online Survey Questions

English Language Questionnaire

What is your nationality? *
 Egyptian
 Other:

Do you live in a city or countryside? *
 City
 Countryside

3) What gender do you identify yourself as? *
 Male
 Female
 Other:

4) What is your age? *
18-24 years old
25-34 years old
35-49 years old
50-64 years old
>65

5) What is the highest degree or level of school completed/will be completed? * Less than a high school diploma High school degree or equivalent Bachelor's degree (e.g. BA, BS) Master's degree (e.g MA, MS, Med) Doctorate (e.g. PHD, edD) Other:

6) Please specify your religion *
 Islam
 Catholicism/Christianity
 Judaism
 Buddhism
 Hinduism
 Other:

7) What best describes your diet? *
Omnivore; eats both plants & meats
Pescatarian; do not eat beef or chicken, but eats fish
Lacto-vegetarian; do not eat any type of meat or eggs, but still consumes dairy products
Ova-vegetarian; eats eggs, but not dairy products
Vegan; do not consume any animal products
Other:

8) If vegan/vegetarian, what was the main motivation to become vegan/vegetarian?
 Concern over animal welfare
 Environmental impact of meat production
 Health benefits
 Religious/Spiritual beliefs
 Wanting to follow a food trend
 Other:

9) If vegan/vegetarian, what would most likely make you quit veganism/vegetarianism?
Being stigmatized (ex: discriminatory comments from others)
Low protein and B12 vitamin intake
Lack of vegan products
Social pressure from family and friends
Too costly
It is really restrictive, especially when eating out
Other:

10) Where do you buy vegan products from? Supermarkets Vegan stores Home preparation Other:

11) If NOT vegan/vegetarian, what would encourage you the most to follow a plant based diet?
Concern over animal welfare
Environmental impact of meat production
Health benefits
Religious/Spiritual beliefs
Wanting to follow a food trend
Other:

12) If NOT vegan/vegetarian, what is the main limitation for you to adopt a plant based diet?
Enjoyment of the taste of meat
Health concerns
Fear of stigmatization (ex: discriminatory comments from others)
Lack of social support (Family, friends, etc)
Low availability of vegan food products
High price of vegan food products
Religious/Spiritual beliefs
Lack of knowledge about plant based diet
Loss of social identity
Other:

13) If NOT vegan/vegetarian, how likely are you to follow a plant based diet?

- 1-Not at all interested
- 2- Not very interested
- 3- Neutral
- 4-Somewhat interested
- 5-Very interested

Arabic Language Questionnaire

* ما هي جنسيتك؟

مصري 🔿

Other:

* هل تعيش في مدينة أم ريف؟

مدينة 🔘

رىف 🔘

* أي جنس تعرف نفسك؟

نکر 🔘

انٹی 🔘

Other:

* ما هو عمرك؟ 18-24 سنة () 25-35 سنة () 35-49 سنة () 50-64 سنة ()

Figure 5, Arabic questionnaire questions

* ما هي أعلى درجة أو مستوى دراسي أكملته / سيتم الانتهاء منه؟
اقل من شهادة ثانوي 🔘
الثانوية العامة أو ما يعادلها
درجة البكالوريوس
درجة الماجستير
دکتوراه
Other:

* يرجى تحديد دينتك

0	الاسلام
0	الكاثوليكية / المسيحية
0	اليهودية
0	البوذية
0	الهندوسية
0	Other:

Figure 6, Arabic questionnaire questions

1	اني؟	* ما أفضل وصف لنظامك الغ
	0	تأكل النباتات واللحوم
	0	نباتي لا تأكل لحم البقر أو الدجاج ، بل تأكل السمك
	0	نباتي لا تأكل أي نوع من اللحوم أو البيض ، ولكنك لا تز ال تستهلك منتجات الألبان
	0	نباتي تأكل البيض ، ولكن ليس منتجات الألبان
	0	نباتي لا تستهلك أي منتجات حيوانية اواللحوم
	0	Other:
F	ligur	e 7, Arabic questionnaire questions

* ما الدافع الرنيسي الذي ساهم بأن تكون نباتيًا؟

- الإهتمام بجودة حياة الحيوان
- التأثير البيني لإنتاج اللحوم 🔘
- الفواند الصحية 🔘
- المعتقدات الدينية / الروحية 🔘
- الرغبة في اتباع الاتجاه الغالب للطعام (الموضة)
- O Other:

* ما السبب الذي سوف يجعلك ان تترك النظام النباتي؟

- التعرض للوصم (على سبيل المثال: التهكم)
- انخفاض البروتين وتناول فيتامين ب 12 🔘
- قلة توافر المنتجات الغذائية النباتية 🔘
- الضغط الاجتماعي من العائلة والأصدقاء
- مكلفة للغاية
- إنه نظام مقيد، خاصبة عند تناول الطعام في الخارج 🔘
- O Other:

Figure 8, Arabic questionnaire questions



* ما أكثر سبب سوف يشجعك على اتباع نظام نباتي؟
الإهتمام بجودة حياة الحيوان
التأثير البيني لإنتاج اللحوم
الفواند الصحية
المعتقدات الدينية / الروحية
الرغبة في اتباع الاتجاه الغالب للطعام (الموضة)
O Other:
* ما هو المانع الرنيسي لك على اتباع نظام نباتي؟
تمتع بطعم اللحم
تمتع بطعم اللحم () الخوف من الوصم (مثال: التهكم)
تمتع بطعم اللحم (الخوف من الوصم (مثال: التهكم) (نقص الدعم الاجتماعي (الأسرة والأصدقاء ، إلخ)
تمتع بطعم اللحم (
تمتع بطعم اللحم (الخوف من الوصم (مثال: التهكم) (نقص الدعم الاجتماعي (الأسرة والأصدقاء ، إلخ) (قلة توافر المنتجات الغذائية النباتية (ارتفاع أسعار المنتجات الغذائية النباتية (
تمتع بطعم اللحم (الخوف من الوصم (مثال: التهكم) (نقص الدعم الاجتماعي (الأسرة والأصدقاء ، إلخ) (قلة توافر المنتجات الغذائية النباتية (ارتفاع أسعار المنتجات الغذائية النباتية (المعتقدات الدينية / الروحية (
تمتع بطعم اللحم (الخوف من الوصم (مثال: التهكم) (نقص الدعم الاجتماعي (الأسرة والأصدقاء ، إلخ) (قلة توافر المنتجات الغذائية النباتية (ارتفاع أسعار المنتجات الغذائية النباتية (المعتقدات الدينية / الروحية (عدم معرفة النظام الغذائي النباتي ()
تمتع بطعم اللحم (الخوف من الوصم (مثال: التهكم) (نقص الدعم الاجتماعي (الأسرة والأصدقاء ، إلخ) (قلة توافر المنتجات الغذائية النباتية (ارتفاع أسعار المنتجات الغذائية النباتية (المعتقدات الدينية / الروحية (عدم معرفة النظام الغذائي النباتي (فقدان الهوية الاجتماعية (

Figure 10, Arabic questionnaire questions

* ما مدى احتمالية اتباعك لنظام نباتي؟							
	1	2	3	4	5		
أبدأ	0	0	0	\circ	\circ	اريد بشدة أن اكون نباتي	



Appendix 2. SPSS Tests

Table 15, Chi square test between gender and diet followed

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.583 ^a	1	.108		
Continuity Correction ^b	2.033	1	.154		
Likelihood Ratio	2.735	1	.098		
Fisher's Exact Test				.146	.074
Linear-by-Linear Association	2.573	1	.109		
N of Valid Cases	271				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.43.

b. Computed only for a 2x2 table

Table 16, Fisher's Exact test between age and diet followed

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	8.900 ^a	4	.064	.065		
Likelihood Ratio	12.106	4	.017	.018		
Fisher's Exact Test	8.421			.063		
Linear-by-Linear Association	2.750 ^b	1	.097	.109	.054	.017
N of Valid Cases	271					

V of Valid Cases 271

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .44.

b. The standardized statistic is -1.658.

Table 17, Fisher's Exact test between level of education and diet followed

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	6.940 ^a	4	.139	.140		
Likelihood Ratio	4.656	4	.324	.376		
Fisher's Exact Test	5.847			.176		
Linear-by-Linear Association	.225 ^b	1	.636	.675	.373	.102
N of Valid Cases	271					

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .44.

b. The standardized statistic is -.474.

Table 18, Kruskal-Wallis H test on how likely are you to follow a plant based diet and gender

					Kruskal-
	Null Hypothesis	Test	Sig.	Decision	df
1	The distribution of How likely	Independent-Samples	.667	Retain the null hypothesis.	Asymp. S
	diet? is the same across	Kruskai-wallis rest			a. Kru
	categories of What gender do you identify yourself as?.				b. Gro
					900

Asymptotic significances are displayed. The significance level is .050.

	are you to follow a plant based diet?
Kruskal-Wallis H	.185
df	1
Asymp. Sig.	.667
a Kruskal Wallie	Tast

How likely

a. Kruskal Wallis Test

b. Grouping Variable: What gender do you identify yourself as?

			How likely are you to follow a plant based diet?	Education
Spearman's rho	How likely are you to follow a plant based diet? Education	Correlation Coefficient	1.000	131 [*]
		Sig. (2-tailed)		.047
		Ν	231	231
		Correlation Coefficient	131*	1.000
		Sig. (2-tailed)	.047	
		N	231	231

Table 19, Spearman Correlation test on how likely are you to follow a plant based diet and level of education

*. Correlation is significant at the 0.05 level (2-tailed).

Table 20, Spearman Correlation test on how likely are you to follow a plant based diet and age

			How likely are you to follow a plant based diet?	Age
Spearman's rho	How likely are you to follow a plant based diet?	Correlation Coefficient	1.000	020
		Sig. (2-tailed)		.763
		N	231	231
	Age	Correlation Coefficient	020	1.000
		Sig. (2-tailed)	.763	
		Ν	231	231