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EXPLORING THE AWARENESS OF ORGANIC FOOD CONSUMPTION IN ALGERIA: A GENDER BASED-STUDY

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Abstract. Organic foods have greatly increased in recent years as people become more concerned about their health, the environment, and the sources of their food. These foods are produced in ways that emphasize natural processes while avoiding the use of synthetic chemicals including pesticides, fertilizers, antibiotics, and genetically modified organisms. Hence, green consumers frequently prefer organic foods for a variety of reasons, including purported health benefits, superior flavor, environmental concerns, and animal welfare. Organic foods can be more expensive than conventionally produced meals, but many people believe the advantages exceed the costs.

This study has an aim to check the impact of gender of respondents on the awareness to use organic foods. This type of products is illustrated on natural milk and natural oil generated from olive. The method explored in this research is an online survey during February 11-25, 2021 among 103 Algeria participants. Then, the results were analyzed through SPSS software V26 in order to use independent samples t-test.

The results indicate that the independence between the willingness to use the organic foods in order to consume organic food and the gender of respondents is ensured. It means that both men and women agree to consume it in this case ($p\text{-value} = 0.296$). Moreover, several suggestions were given for future studies, as well as including other variables (Age groups, academic degree, and income level).

Keywords: consumer behavior, green marketing, organic foods, independent samples t-test, gender, Algeria.

JEL Classification: M30, M31, D12, E21, P36

INTRODUCTION

1 Background of the Study

1.1 Organic foods

Globally, interest in organic food consumption has surged, spurred by increased consumer concerns about wellness, eco-friendliness, and food safety (Diagourtas et al. 2023; Leonidou et al. 2022). Consequently, the most important reason for purchasing organic foods appears to be "health." (Aygen, 2012). Furthermore, foods produced without the adoption of chemical pesticides are referred to as organic foods (Singh 2017). When the world's population was low, almost all agriculture was organic and close to nature. However, these historic practices, passed down through generations, did not supply enough food to meet the needs of the world's rapidly rising population. This triggered the "green revolution," in which farmers employed technological interventions to increase outputs in order to meet the rising demand for food from an ever-increasing population. (Dholakia & Shukul, 2012).

Furthermore, previous research has discovered that the most essential aspects of organic foods are health (few artificial chemical residues in the product and high nutritional content), environment (desire for a product produced and processed in an environmentally responsible manner), and high quality, such as flavor (Pearson, 2002). Customers' desire to preserve healthy eating habits that improve their quality of life drives the usage of organic food, in addition to solving immediate environmental issues (Ditlevsen et al, 2019).

The organic market is now 60 years old, and term harmonization was required, which is updated on a regular basis. The term "organic" originally appeared in Northbourne's (1940) research on organic farms, "Look to the Land." Consumers play a vital role in addressing the sustainability challenges of food systems (Hedin et al, 2019; Vermeir et al, 2020). According to Eurobarometer (2020) and Mintel (2021), consumers expect producers and manufacturers to improve food systems sustainability.

Organic production was defined in Europe as an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources and the application of high animal welfare standards and high production standards in response to the growing demand from consumers for products obtained using natural substances and processes. Moreover, according to the French Agency for Organic Agriculture, the label guarantees that the food is composed of at least 95% ingredients from organic production; the absence of GMOs (within a limit of 0.9%), and certification under the control of a body approved by the French public authorities.

In Algeria, the diversity of climate and landscapes has generated a wealth of local products. These products contribute to meeting the needs of local consumers through co-financing. However, for greater visibility of these products, it is essential to award them quality labels: BIO, Protected Geographical Indication (PGI), Protected Designation of Origin (PDO) and Controlled Designation of Origin (AOC). For instance, the public authorities have put in place a regulatory system allowing the certification of local products. However, the process of labeling these products is experiencing significant delays due to several constraints.

The relationship between masculine and feminine values, as defined by Hofstede (2011) and the consumption of organic food is a complex topic that requires nuanced analysis. Here is how these cultural dimensions can influence consumer behavior:

Masculine Societies:

- In cultures with a high masculinity, the emphasis is on performance, competition, and materialism.
- This may result in less concern for the environmental and health aspects of organic food.
- Men may be more inclined to prioritize quantity and price, while women may be influenced by standards of beauty and thinness, which may turn them away from organic foods, which are perceived as more "natural" and less "processed."

Feminine Societies:

- In cultures with a high femininity, the dominant values are quality of life, harmony, and cooperation. This can foster greater awareness of environmental and health issues, resulting in increased consumption of organic products.

- Women, who are often responsible for food purchases, may be more attentive to information about the health benefits of organic foods for their families.

According to (Lea, & Worsley, 2005; Van doorn. & Verhoef, 2011), younger household and women consider organic food more important and include it in their purchase. Similarly, past studies have also found that women are more interested in organic food than men (Wandell & Bugge, 1997). These past studies are also supported by (Koivisto, & Mangnusson, 2003) who noted that a higher proportion of women holds positive attitudes towards organic foods and consumes organic foods (Storstad, & Bjorkhaug, 2003).

1.2 Green marketing

Several authors have defined marketing in different ways. Green marketing has developed over time as a key option for society's long-term growth in the twenty-first century, taking into account the increasingly strained relationship between humans and the environment (Vijai & Anitha, 2020; Yang & Chai, 2022). It is exciting to know that advertising is the most commonly used approach to create awareness of environmental products and drive demand (Carlson et al, 1993). Furthermore, Green advertising, which has developed considerably since the late 1990s, is recognized as the driving force behind rising global public awareness of environmental and ecological issues, as well as leveraging demand for green products (Futerra, 2008; Cox, 2008; Leonidou et al, 2011).

The literature has a variety of definitions of green marketing. In the early 1970s, the American Marketing Association (AMA) first defined ecological marketing as the study of the positive and negative consequences of marketing activities on pollution, energy depletion, and non-energy resource depletion. The term Green Marketing gained widespread in the late 1980s and early 1990s (Ahmed et al, 2023). Green marketing, often known as environmental marketing or responsible marketing is the integration of value-creating transformation in the natural environment, consumers, and society (Polonsky, 2011). Furthermore, Charter & Polonsky (1999) this concept is described as marketing or promoting a product based on its environmental performance or improvement. Furthermore, green marketing is defined as a movement aiming at businesses who offer ecologically responsible products.

LITERATURE REVIEW

Many researches on the consumption of organic foods became the topic of discussion (Crane et al. 2019; Nystrand & Olsen, 2020; Gundala & Singh, 2021; Siahaan & Thiodore, 2022; Brata et al, 2022, Lamonaca et al, 2022; Siahaan & Thiodore ,2022; Czudec's, 2022; Boukhedimi et al, 2023; Deliberador, 2024; Boukhedimi, & Ataş, 2024; Akli et al, 2024).

Crane et al. (2019) analyzed food purchasing behaviors and diet quality by gender in the US (n=204). Research indicates that women account for 82.8% of household food purchases, with no gender disparities in the quantity of items purchased. In addition, men made less purchases in retailers (74.0%; $P < .001$) than women (81.4%). There were no gender differences in overall food quality or source of purchase.

Nystrand & Olsen (2020) conducted a study on Norwegian consumers' attitudes and intentions to use functional foods. Exploring the theory of planned behavior (TPB) among 810 respondents, it was discovered that utilitarian eating values were strongly and favorably correlated with participants' attitudes toward the consumption of functional meals, whereas hedonic eating values were less strongly and negatively related to attitude. To ensure commercial success, the food sector must boost the hedonic value of functional meals.

Gundala & Singh (2021) investigated the elements that influence customer purchasing behavior for organic products in the Midwest (United States). Based on 770 consumer responses, ANOVA, multiple linear regression, factor analysis, independent t-test, and hierarchical multiple regression analysis were used to demonstrate that health awareness, consumer knowledge, perceived or subjective norms, and price perception influence consumers' attitudes toward purchasing organic foods, as well as availability and other demographic data (e.g. age, education, income).

Besides, Siahaan & Thiodore (2022) studied the impact of customers' behavior on the purchasing of organic goods among 400 Indonesians. The study was carried out between June 12th and July 3rd, 2017, and used a Structural Equation Model (SEM) and descriptive analysis of data. As a result, researchers observed a "strong" correlation between views, perceived behavior, and the willingness to purchase organic goods. In any event, subjective norms did not change the aim. As a result, using intention as a mediator variable, it identified a very high link between organic food purchasing decisions.

Another study, "Overview of Organic Consumption in Brazil," examined organic consumption patterns among a sample of 1000 people in Brazil in 2021 (Organis GmbH, 2022), and found that roughly 36% of respondents acknowledged recent usage of organic food during the last 30 days, with another 10% noting consumption within the last 6 months. Furthermore, several participants stressed the higher cost of organic products, citing perceived benefits such as the absence of pesticides in manufacturing, superior quality, and improved farming procedures.

Furthermore, Lamonaca et al. (2022) reported results from a survey of 672 Italian consumers' views of organic food attributes. According to the statistics, people consider organic food to be safer than healthiness and environmental sustainability. Furthermore, the presence of specific information on food labels creates the impression that organic food is healthier, safer, and more environmentally friendly. As a result, the socio-demographic profile of customers is important: men and women see organic food differently, and younger consumers are more likely to buy and consume organic products.

Accordingly, Brata et al. (2022) evaluated the factors that influence customers' opinions of organic food consumption, as well as how frequency altered prior to and following the COVID-19 epidemic in Romania. A questionnaire was handed out to 190 organic food buyers in Bihor Province. As a result, people who used organic products more frequently prior to the pandemic either maintained or increased their consumption, whereas more indifferent consumers kept or reduced the amount of organic foods in their diet.

Furthermore, Czudec's (2022) study aimed to determine the factors that raise organic food buyers' interest in the origin of their food among 850 Polish consumers. The survey results also highlighted that customers' emphasis on the value of organic food's local origin is causally related to their awareness of the needs of others; especially, this is illustrated by including the necessity of caring for the natural environment in their purchasing decisions.

Boukhedimi et al. (2023) also evaluated the impact of demographic variables on organic food consumption in 14 countries, including respondents' gender, age, occupation, educational level, and nationality. As a result, the results showed that the demographic parameters studied were independent of organic food consumption.

Akli et al. (2024) administered a questionnaire to explore the behavior of Algerian consumers of agro-ecological products, and the results revealed that more than a third of respondents (37.5%) consumed agro-ecological items out of 315 participants.

The study conducted by Boukhedimi & Ataş (2024) aims to investigate the effect of gender on people's inclination to consume organic items, with an emphasis on women. This work adds substantial theoretical value to previous studies in the healthcare sector, which has risen in recent years to ensure consumer well-being by promoting the use of safe food, also known as organic foods. The Chi-square test and two-sample independent t-test are used to examine whether Turkish and Algerian women are aware of the consumption of organic meals. The study had 81

participants, 63 of them were women; it was discovered that there is no significant gender difference in the adoption of organic foods.

Along with a study conducted by Deliberador (2024) on 240 Brazilian clients. The data indicate that environmental concern, price consciousness, and health awareness are all important determinants in organic food purchasing intention, while impulsive buying value is not. The intention to buy organic food decreased household food waste, indicating that this association is not a reliable predictor.

In this regard, the current paper examines the linkage between gender awareness and organic foods among Algerian consumers. Hence, the research statement could be presented as follows:

Does gender influence individuals' awareness of the consumption of organic foods in Algeria?

1.2 Research hypotheses

1. Both men and women are aware of the consumption of organic foods in Algeria;
2. There is a significant difference regarding the use of organic foods in Algeria based on the gender.

METHODOLOGY

To address the mentioned research problems, this work combines both qualitative and quantitative methods. Several publications were used to research previous studies, which primarily focused on organic foods. In this situation, certain keywords were used to emphasize the study's aim. However, the quantitative method is used to verify previously specified hypotheses by performing statistical tests and methods such as descriptive statistics and the independent-samples t-test.

1. Sampling

The current study's sample population comprises of Algerian consumers in order to investigate the impact of their socio-economic status on the consumption of organic foods, with 103 participants. Thus, it should be mentioned that the study sample is representative according to the central limit theorem (CLT), which was highlighted by (Chang et al, 2006; Polya, 1920; Johnson, 2004; Urdan, 2005; Berenson et al, 2012 ; Bajpai, 2013; Kwak & Kim, 2017; Allende-Alonso et al, 2019; Jenkins & Quintana-Ascencio, 2020; Elsherif, 2021; Nair et al, 2022; Boukhedimi et al, 2023; Sriram, 2023; Zhang et al, 2023; Fukuda, 2024), who outlined that as long as we have a reasonably large sample size (e.g, $n = 30$), the sampling size of the study will be normally distributed.

2. Data collection

An online questionnaire was used to collect data, and the respondents were asked questions about organic foods intake. The online poll was done from February 11th to February 25th, 2021, with a random sample of Algerian citizens. Thus, the gathered data were entered and analyzed using SPSS software V26 to enable the assessment of study hypotheses.

RESULT AND DISCUSSION

1. Reliability test

The Cronbach alpha ranges statistically from 0.0 to 1.0. The number is allowed when it ranges between 0.6 and 0.7 (George & Mallery, 2003). Our questionnaire's reliability is adequate (0.72).

2. Sociodemographic statistics

The survey had 103 participants. Women accounted for 70.87% of the total sample, while men made up 29.13%, with a birth year range of 1986 - 2003 or aged 18 years - 35 years old.

Overall, it is fair to use the term gender instead of gender in economic study because gender is especially tied to biological and physical characteristics. On the other hand, according to the statistics by age group, the majority of respondents are from generation "Y" (95.1%), with 4.9%

from generation (Z). Furthermore, the table below shows that there is some desperation based on the responses obtained (SDs were close to zero).

Table 1.

Descriptive statistics for the gender of the study sample

	Frequency (n)	Mean (\bar{x})	Standard deviation (σ)
Man	30	1.26	0.24
Woman	73	1.20	0.25

Source: Survey data

3. Test of Normality

Due to the small number of men in the current survey (n=30), it was necessary to use Shapiro-Wilk (SW) test to determine if the dependent variable followed a normal distribution among men. Furthermore, the Kolmogorov-Smirnov (KS) test was used to determine if the replies of women are regularly distributed (n=73). Although the dependent variable does not follow a normal distribution (Sig=0.000) for both men and women, we can ignore it if the number of respondents equals or exceeds 30 as indicated in the central limit theorem.

4. Independent-samples t-test

According to the study findings, the two-tailed t-test performed on an independent sample has shown that gender of the participants has no effect on the desire to consume organic foods, as stated in the first hypothesis. Furthermore, the variances of two samples are homogeneous (LEVENE test sig: 0.83 > 0.05), and the t-test result is not significant (sig t: 0.296 > 0.05). Thus, there are not significant differences between men and women regarding the awareness for organic food consumption. Therefore, the first hypothesis is accepted and the last hypothesis is rejected.

Table 2.

Hypotheses results

Hypotheses	Result
H1	Accepted
H2	Rejected

Source: Survey data

CONCLUSION

Organic foods provide a numerous advantages, including lower exposure to synthetic pesticides and fertilizers, support for environmentally sustainable farming practices, and, in some circumstances, potentially increased nutritional value. While organic products are typically more expensive, many consumers prefer them for health, environmental, and ethical reasons. Ultimately, whether or not to pick organic foods is determined by personal values, goals, and access, but it is obvious that organic agriculture plays a vital role in developing a more sustainable and aware food system.

Exploring qualitative and quantitative approaches, the aim of this contribution was to investigate the relationship between gender and the awareness for the consumption of organic food in Algeria. Hence, the theoretical part provides a comprehensive view of organic foods and green marketing. Moreover, the current study adds an important conclusion to prior investigations.

Referring to the independent samples t-test, it has been indicated that there is no significant difference between men and women regarding this matter. In the other words, the first hypothesis is approved, and the second hypothesis is to be rejected.

The study identifies significant findings. However, obvious limitations are shown. Regardless to the central limit theorem which suggests that the stated findings might be generalized to include the entire survey population. The collected data are less extensive (n=103), this limit is due to time and financial constraints. Another drawback is that respondents had higher concentration among women (70.87%). As a result, expanding the sample size as well as including men is highly recommended. It should be noted that this study doesn't cover all Algerian cities, and other factors (Age groups, educational degree, and income level). Therefore, it is suggested to consider these variables in future research.

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ДОСЛІДЖЕННЯ ОБІЗНАНОСТІ ЩОДО СПОЖИВАННЯ ОРГАНІЧНИХ ПРОДУКТІВ ХАРЧУВАННЯ В АЛЖИРІ: ГЕНДЕРНЕ ДОСЛІДЖЕННЯ

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Останніми роками кількість органічних продуктів значно зросла, оскільки люди стали більше турбуватися про своє здоров'я, навколишнє середовище та джерела їхнього харчування. Ці продукти виробляються таким чином, щоб підкреслити природні процеси, уникаючи використання синтетичних хімікатів, включаючи пестициди, добрива, антибіотики та генетично модифіковані організми. Тому «зелені» споживачі часто віддають перевагу органічним продуктам з різних причин, включаючи передбачувану користь для здоров'я, чудовий смак, турботу про навколишнє середовище та добробут тварин. Органічні продукти можуть бути дорожчими за традиційні, але багато людей вважають, що переваги перевищують витрати.

Це дослідження має на меті перевірити вплив статі респондентів на обізнаність щодо використання органічних продуктів харчування. Цей тип продуктів проілюстровано на прикладі натурального молока та натуральної олії, виробленої з оливок. Методом дослідження є онлайн-опитування, яке проводилося з 11 по 25 лютого 2021 року серед 103 респондентів з Алжиру. Потім результати були проаналізовані за допомогою програмного забезпечення SPSS V26 з метою використання t-тесту незалежних вибірок.

Результати свідчать про те, що незалежність між бажанням споживати органічні продукти харчування та статтю респондентів забезпечена. Це означає, що і чоловіки, і жінки згодні споживати її в цьому випадку ($p\text{-value} = 0,296$). Крім того, було висловлено кілька пропозицій щодо майбутніх досліджень, а також включення інших змінних (вікові групи, науковий ступінь та рівень доходу).

Ключові слова: поведінка споживачів, зелений маркетинг, органічні продукти, харчування, незалежний вибірковий t-тест, гендер, Алжир.