

## **Studying the effect of Health consciousness, environmental attitude and healthy lifestyle on attitude toward organic foods**

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### **Abstract**

The crisis of food supply caused by mad cow disease, contagious Foot-and-Mouth Disease (FMD), Belgian dioxin scandal and concerns about the use of pesticides in agriculture as well as antibiotics and hormones in animal feed has resulted in the reaction of consumers toward the loss of confidence in the quality of food with conventional production. Currently, consumers are more aware of nutrition, health and quality of food they eat and health has become an important criterion for buying foods. The main purpose of this study is to investigate the hypothesis that whether health consciousness and environmental attitude through healthy lifestyle affects consumer attitude toward organic foods or not. These results can help producers and marketers in preparing appropriate strategies to improve marketing for the consumption of organic food. This study is an applied study concerning purpose and is a descriptive study concerning data collection methods. The statistical population of this study includes the consumers of organic foods in Tehran city. Random sampling method was used as sampling method and sample size was determined 384 subjects using Cochran formula. According to results of this study, there is no need that sellers of organic products pay attention to customers' gender and age for encouraging them to buy organic products. Sale managers of organic products must consider the availability of these products; force suppliers to be ensure about consumers' access to organic foods in stores and don't limit their sale to specific stores. Also the results showed that consciousness of the benefits of organic products paves the way to change the purchasing behavior of organic products buyers.

**Key words:** Attitude toward organic foods, health consciousness, consumer behavior, environmental attitude, healthy lifestyle

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### **Introduction**

Consumers are increasingly demanding those food products that have been produced without exploiting the environment. The objectives of organic agriculture are to protect environment and maintain land fertility and the natural properties of foods. Therefore, organic food products are less harmful for the environment compared to those food products that grow naturally (Schifferstein and Oude Ophuis, 1998; Williams and Ham mitt, 2001)

The increasing number of studies show that concern about the health of consumer is often stated as an incentive to choose organic food (Magnusson et al., 2003; Schifferstein and Oude Ophuis, 1998, Trigger et al., 1994; Wand and Bugged 1997; Williams and Ham mitt 2001). Moreover, this is a reasonable belief that consumers' readiness for the well-being actions is an important factor in consumer attitude toward organic foods. The high readiness of individual to do well-being actions means more positive attitude toward organic foods. In other words, consciousness of consumer health affects attitude toward organic foods. Selecting consumer food not only influences on health but also on the success or failure of today's consumer-based food products in the food market. From the 1960s to the present, environmental issues and disclosure of common policies in business have been very important. With the growing public consciousness toward environment and business in response to these concerns, the 1990s has been termed as environmentalism decade. A recent study done by Food and Agriculture Organization of the United Nations in 1998 indicated that adequate management in organic farming creates a positive impact on the environment. For example, organic farming can help reduce water pollution and product substitution can also increase soil fertility. As a result, organic farming has been considered as a sustainable way to deal with the environment, soil, animals, pests and weeds. It is believed that consumers change their attitude toward environmental protection and conservation of natural resources as well as the increase of public environmental consciousness in favor of organic food products rather than conventional food products. Some of previous studies provide evidences suggesting that environmental concerns are as an important factor in the purchase of organic foods. Consumers will be interested in issues related to healthy foods when they realize the hazards of foods and loss their trust to the quality of conventional foods. Health has become as an important determinant to buy foods and quality parameters for many consumers. (Magnusson et al., 2001 Wandel and bugged, 1997). Public concern about maintaining or improving health is the main reason to buy organic foods. Many consumers believe that organic foods are healthier and provide more health benefits than current alternatives. Thus, they have positive attitude toward organic products (Beharrell & MacFie, 1991, Jolly et al., 1989).

### **Statement of the problem**

Nowadays, the demand for organically grown production has increased. Organic farming refers to a farming system that applies organic manure and prevents using synthetic fertilizers, pesticides, and chemicals. In addition, organic foods include less deleterious additives and more primary and secondary nutrients than conventional foods, and they carry no additional risk of food poisoning. On the basis of the precautionary principle, it seems that selecting organic foods to be a rational decision. Since consumers perceive foods labeled as organic to be healthier

than conventional foods (Grankvist and Biel, 2001; Magnusson et al., 2001; Torjusen et al., 1999). The most commonly beliefs concerning organic foods are that they are healthier and promise better environmental protection. Therefore, the two most commonly stated factors for buying organic foods are concerns for one's health and for the environment (Wandel and Bugge, 1997). It is believed that health consciousness and environmental attitudes determine individual attitude toward organic foods. Furthermore, the healthy lifestyle emphasize on activities related to physical health and can increase the effect of health consciousness and environmental attitudes in attitude toward organic foods.

### Literature review

The studies done in foreign countries: the examination of scientific websites indicated that there are a number of studies concerning this issue, which we refer to some of them.

- Tan and Lu (2010) conducted a study to compare genders (male & female) and the difference of their attitude toward environment and green products. The results indicate that there isn't significant difference between gender and individuals' environmental attitude as well as attitude toward green products.
- Gupta and Ogden (2009) investigated the inconsistencies between attitudes and consumer behavior. The results indicates that the different characteristics of individuals, such as trust, a spirit of joining the group, expecting cooperation from others and perceived effectiveness are major distinction between green purchasers non-green purchasers.
- Tarkiainen, and Sundqvist (2005) studied the theory of planned behavior (TPB) in the purchase of organic foods in their own study. Their presented model measures the effect of subjective norms, attitudes, importance of price, availability and concerns about health on the purchase intention of organic foods. The results indicate that the presented model predicts the purchase intention of organic foods better than the main model of TPB.
- The studies done in Iran: by the investigations conducted in the Iranian Research Institute for Information Science and Technology (IRANDOC), the researcher didn't find similar study like this one. Therefore, a number of studies conducted on the variables of this study are referred in the following:
- A study was conducted by Mohammadiyan and Khatayi in 1390, where they investigated the relationship between internal and social factors as well as consumer behavior. The results of their study showed that the relationship between environmental attitudes, individual norms, perceived effectiveness by green consumer and social norms (inhibitors) with behavioral dimension of green consumer is supportable.
- A study was done by Hekmatpour, Shams & Zamani in 1392. This study investigates the effect of healthy lifestyle program on life quality of elders in Arak city.

### The significance of the study

In the past few decades, the consumer demand for environmentally friendly food has continually increased (Jang et al, 2011). According to the reports of international consumers in 2004, due to the increased marketability of sustainable food production and consumption, there has been an expansion in the demand for a wide range of green and eco-friendly foods.

Extensive research has shown that due to the development of many chronic diseases, health is very important. Thus, researchers believe that anyone with a healthy diet and use of organic food as well as appropriate physical activity can be healthy.

### Research objectives

The main objective of this study is to determine the effect of health consciousness and environmental attitudes through healthy lifestyle on consumer attitude toward organic foods.

Other objectives are as the following:

- Determining the effect of health consciousness on a healthy lifestyle.
- Determining the effect of health consciousness on attitude toward organic foods.
- Determining the effect of environmental approach to a healthy lifestyle.
- Determining the effect of environmental attitudes on attitude toward organic foods.
- Determining the effect of healthy lifestyle on attitude toward organic foods.

### The theoretical framework of research

#### Health consciousness

Consumers are interested in the issues relating food to health when realize food safety risks and lose confidence in the quality of conventional foods. Healthiness has become an important determinant for buying foods and a parameter of quality for many consumers (Magnusson et al., 2001; Wandel and Bugge, 1997). Public concern about maintaining or improving health is the main reason to purchase organic foods (Schifferstein and Oude Ophuis, 1998; Tregear et al., 1994). Many consumers believe that organic foods are healthier and offer more health benefits than conventional alternatives and have a positive attitude towards organic products (Beharrel and MacFie, 1991; Jolly et al., 1989). Therefore, according to above issues, two following hypotheses are proposed:

**H1:** health consciousness has a significant effect on healthy life style.

**H2:** health consciousness has a significant effect on attitude toward organic products.

#### Environmental attitudes

Since 1960s to the present, environmental issues and the disclosure of public policies in business has been very important. With the growing public awareness of the business environment in response to these concerns, 1990s was called as environmentalism decade. Recent studies suggest that adequate management in organic farming creates a positive impact on the environment. Based on the above issues, two following hypotheses are proposed:

**H3:** Environmental attitude has a significant effect on healthy life style.

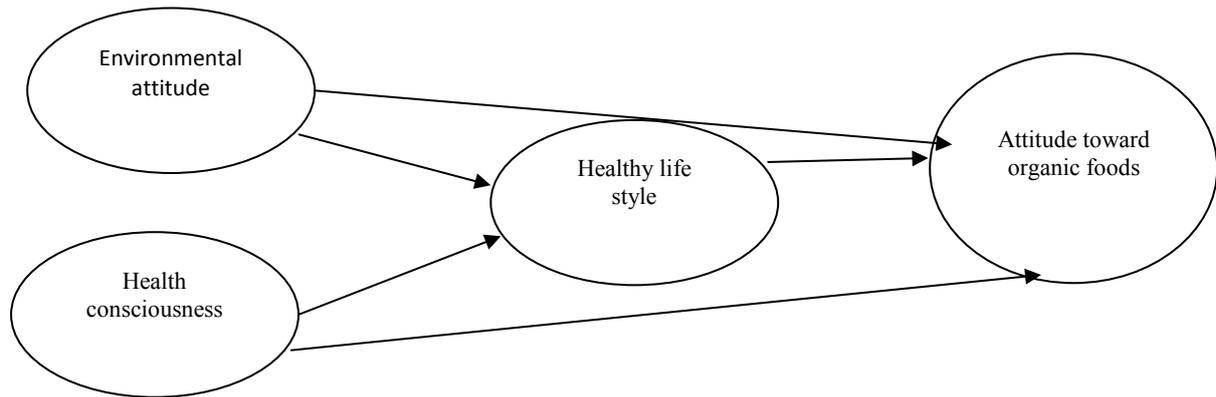
**H4:** Environmental attitude has a significant effect on attitude organic products.

#### Healthy lifestyle

Although health consciousness and healthy lifestyle are associated with each other, but some people still have an unhealthy lifestyle while they have health consciousness. This means that a positive relationship between consciousness and consumer attitude toward organic foods and a positive relationship between environmental attitudes and consumer attitude toward organic foods will be increased when it leads to a healthier lifestyle of consumers. Based on the above issues, the following hypothesis is proposed:

**H5:** healthy life style has a significant effect on attitude toward organic products.

#### Research Model



Sources:

- Jang, yj, kim, wg and Yang, IS. (2011)
- Van Dam, YK (1991)

#### Research questions or hypotheses

**H1:** health consciousness has a significant effect on healthy life style.

**H2:** health consciousness has a significant effect on attitude toward organic products.

**H3:** Environmental attitude has a significant effect on healthy life style.

**H4:** Environmental attitude has a significant effect on attitude organic products.

**H5:** healthy life style has a significant effect on attitude toward organic products.

#### Research methodology

This study is an applied research concerning purpose and is descriptive-survey and correlational study concerning data collection. The library method was used to collect information related to research background and literature review which included the examination of available similar theses and researches, the study of relevant papers and books as well as the use of Internet. Field method was used to examine and test hypotheses. Thus, research questionnaire included 21 questions which measured research variables. This questionnaire was distributed among 384 people of organic food consumers by simple random sampling.

#### Validity, reliability

To measure the validity of questionnaire, the following methods were used:

- Face validity: to measure face validity, the opinions of some non-experts were asked regarding the validity of questions.
- Content validity: a questionnaire was distributed among 15 experts in this area, in which they were asked about the suitability or non-suitability of questions according to research variables and objectives. The completed questionnaires were collected and the ratio of content validity was calculated for each question which was 0.62, and finally the non-suitable question were removed.
- Construct validity: for this purpose, confirmatory factor analysis (CFA) was used. If the factor loading of each indicator with its own construct has the t value higher than 1.96, then this indicator will have the required precision to measure that construct or latent variable. The obtained results showed that all constructs have the required precision to measure the construct or latent variables of the study.

Therefore, considering the stated reasons the questionnaire was appropriate as one of the data collection tools of this study.

In this study, Cronbach's alpha coefficient and CR were used to determine the reliability of measurement tool:

- Cronbach's alpha coefficient: at first, research questionnaire was distributed among 32 subjects of population. The value of alpha coefficient for questionnaire on the basis of pre-test was 0.740 and 0.7. Therefore, the reliability of this questionnaire is approved.

Also, the soft wares used for data analysis were the software packages of SPSS and PLS.

### Data analysis

#### Descriptive statistics

*Gender:* according to gathered data from questionnaires, women and male subjects formed 63 and 37 percent of statistical sample, respectively.

*Marital status:* According to collected data, 55 percent of sample were married subjects and 45 percent were single subjects.

*Age:* Among respondents, the majority equivalent to 32 percent aged 30-21 years. The least frequency of age was related to respondents under 20 years which constituted 15 percent of sample.

*Education:* among respondents, the highest frequency in terms of education was belonged to subjects with graduate level of education equivalent to 42 percent of sample and the least frequency was related to subjects with Ph. degree equivalent to 6 percent of sample.

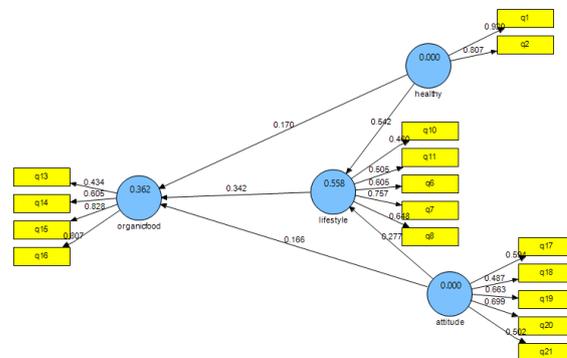
*Income:* among respondent, the highest frequency in terms of income was belonged to subjects with the income level of 1500000-1000000 t equivalent to 34 percent of sample and the least frequency was related to subjects with the income less than 350000 t equivalent to 5 percent of sample. In inferential level of present study, partial least squares analysis was used to test hypotheses. The reason to use partial least squares method in this study is the non-normality of variables' distribution. In PLS models, two models are tested. The first model is the external or measurement model that investigates the validity and reliability of questionnaire. To do this, three important indicators are used: average variance extracted (AVE), composite reliability (CR) and factor loadings. The second model is internal or structural model that indicates the relationship between latent variables of study. Using internal model, we can investigate research hypotheses.

#### Sample adequacy

In doing factor analysis to ensure that research data are reducible to a number of factors or not, KMO and Bartlett tests were used. Since the value of KMO index is equal to 0.766 (above 0.7), the sample is adequate for factor analysis and path analysis with structural equations modelling. Also, the sig. value of Bartlett's test is smaller than 5 percent which indicates that there is significant relationship between variables and factor analysis is appropriate to identify the structural model.

#### External model (measurement model)

In methodology of structural equation modeling, initially it is necessary to study construct validity in order to determine the selected indicators for measuring the desired constructs. For this purpose, confirmatory factor analysis (CFA) is used. In this way, the factor loading of each indicator with its own construct has the t value in the error level of 5 percent i.e. its value is beyond the range of 1.96 and -1.96, and also the factor loading of each indicator with its own construct be higher than 0.05.



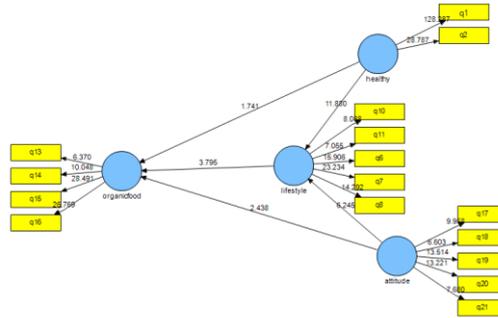
#### The external model in significance state

Construct validity is one of internal validity methods meaning that the intended tool has no error. This assessment is done through divergent and convergent validities which are as follows:

*Convergent validity:* it represents the relationship of different criteria or indexes to each other. If the values of average variance extracted (AVE) for all constructs to be higher than 0.5, it means that items will explain the variance of their own constructs 50 percent. Also, this indicates that the tests used in the study have convergent validity.

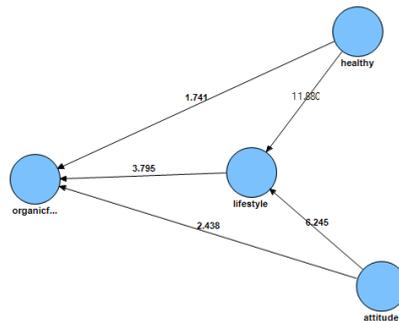
*Divergent validity:* it exists when based on theory it is predicted that two variables don't have perfect correlation and the scores that are obtained after their measurement prove this fact experimentally. This index evaluates the relationship of one construct with its indicators in comparison to the relationship of that construct with other constructs in the model. AVE calculated values for all constructs is higher than 0.5, thus items or questions explain more than 50 percent of the variance related to their own constructs. The suitability of values for this index indicates that the tests used in the study have convergent validity. The correlation between constructs is less than the average variance extracted square of each construct which indicates that no perfect correlation exist between two variables and the combination of items is in a way that all constructs are separated well. Therefore, the measurement tool has divergent validity. Considering that convergent and divergent validity are confirmed,

measurement tool has construct validity. On the other hand, other constructs have composite reliability higher than 0.7. Therefore, there is internal consistency between parameters associated with each variable.



**Internal model (path analysis)**

An internal model (structural model) describes the relationship between latent variables and determines how much of one latent variable variance is explained by other latent variables. To assess model, regular indicators are used which include R<sup>2</sup>, path coefficients and critical coefficients. In order to study the significance of path coefficient or Beta, iteration method was used. For this purpose, iteration in three states 100, 300, 300 of sample was used. The results showed that there is no change in the significance or insignificance of parameters at three states and results has strong validity. Therefore, the hypotheses can be tested in regression model. The diagram below shows the internal model for research hypotheses in a significance level.



To study model fitness in partial least squares, global quality standard (introduced by Amato et al., in 2004) was used.

$$GOF = \sqrt{\text{communalit} \ y \times R^2}$$

**Table:** Calculation of internal model Fitness

	Environmental attitudes	health consciousness	healthy lifestyle	Attitude towards organic foods	GOF
<b>Communality</b>	0.55	0.74	0.56	0.57	0.523
<b>R<sup>2</sup></b>			0.55	0.36	

The value of goodness of fit index is equal to 0.523 which indicates the overall strong fitness of structural model, meaning that internal model has enough power to test the hypotheses. Also, R<sup>2</sup> or coefficient of determination indicate the effect of exogenous variables on one endogenous variable. This criterion is only calculated for endogenous constructs and its value is zero for exogenous constructs. The high the coefficient of determination for model indicates better fitness. Chin (1998) introduced 0.19, 0.33 and 0.67 as criterion value for weak, average and strong values. According to obtained results, 55 percent of changes in healthy lifestyle is explained by health consciousness and environmental attitude and 36 percent of changes in attitude toward organic foods is explained by health consciousness, environmental attitude and healthy lifestyle. Healthy lifestyle construct has strong R<sup>2</sup> value and attitude toward organic foods has average R<sup>2</sup> value. Based on the internal model obtained from hypotheses testing, we try to support or reject the hypotheses. To do this, the significance coefficient (t statistics)

is used. If t statistics to be more than 1.96 or less than -1.96 (in 5 percent error level), the hypothesis will be supported and significant relationship between two latent variable is obtained.

No.	Hypothesis	Path coefficients	Significance value	Hypothesis testing	The results of previous studies
H1	Health consciousness has a significant effect on healthy life style.	0.54	11.88	supported	supported
H2	Health consciousness has a significant effect on attitude toward organic products.	0.17	1.74	Rejected	supported
H3	Environmental attitude has a significant effect on healthy life style.	0.27	6.24	supported	supported
H4	Environmental attitude has a significant effect on attitude organic products.	0.16	2.43	supported	supported
H5	Healthy life style has a significant effect on attitude toward organic products.	0.34	3.79	supported	supported

### Conclusion

The results of this study are in line with the results of studies conducted by Kim and Chung (2011) and Powell and Rena (2012) regarding the positive relationship between variables. Sellers of organic products need to change the purchasing behavior of consumers towards organic products and to inform them about the environment and destructive impact of non-organic products like non-recyclable packaging on environment as global warming and ozone depletion. Those who are environmentally aware are exposed to modify their purchasing behaviors in order to improve environment, therefore, it is suggested to the sellers of organic products encourage current customers toward more purchase and attract new customers for buying organic products through creating positive mentality and good feelings in customers. Whether the consumer relies on him/herself to buy organic products or has used these products in the past has no effect on his/her purchasing behavior in the future. It is suggested that the sellers of these products be cautious about the results of this study and take into account all aspects of the work by considering the results of previous studies. The sellers of organic products should not expect consumers who already have experienced using organic products, be still willing to buy these products. They should not give up their attempts by assuming that the customers themselves choose these products due to previous experience of consumption, but they should try to use those methods that have the greatest impact on the behavior of consumers in order to attract new customers and increase sale volume. According to results, sellers of organic products do not need to pay attention to the sex and age of people in order to persuade them to buy organic products or consider age or sex as a base of their sale advertising. The sale managers of organic products should pay attention to the availability of these products and force suppliers to ensure about consumers' access to organic foods in stores so that they can increase the knowledge and understanding of environmental issues among consumers. Don't limit the sale of these products to specific stores and provide a variety of these products in most of supermarkets and large retailers.

### Suggestions

According to the first hypothesis about the effect of health consciousness on healthy lifestyle, it is suggested to companies to take appropriate measures in order to improve healthy lifestyles toward changes in health consciousness. One way to raise health consciousness of people especially in elder ages is intensive care and therapy services and facilities with suitable costs. According to the third, fourth and fifth hypotheses concerning the effect of environmental attitude on healthy lifestyles and attitude toward organic foods as well as the effect of healthy lifestyle on attitude toward organic foods, it is suggested to companies take appropriate measures in order to improve attitude toward organic foods and healthy lifestyle toward changes in environmental which includes the following issues:

The use of color, design or interesting marks in the packaging of organic products in order to detect and distinguish them from other products, in such a way to attract customers. Proper pricing of organic products so that they can compete with similar products. Insert information about the benefits of using organic products on the packaging of organic products. According to the second hypothesis based on the effect of health consciousness on attitude toward organic foods, the following cases are suggested:

- Informative programs regarding health consciousness and attitude toward organic foods to be prepared and broadcasted through media which itself can motivate individuals to pay more attention to media.
- Planning should be done in cultural, social and economic field in relation to healthy lifestyle, health level and attention to environmental issues.
- Using packages that can be reused by manufacturer or consumer.

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