

Yazar, Evrim Erdoğan; Burucuoğlu, Murat

**Article**

## Consumer Attitude towards Organic Foods: A Multigroup Analysis across Genders

Istanbul Business Research (IBR)

**Provided in Cooperation with:**

Istanbul University, Business School

*Suggested Citation:* Yazar, Evrim Erdoğan; Burucuoğlu, Murat (2019) : Consumer Attitude towards Organic Foods: A Multigroup Analysis across Genders, Istanbul Business Research (IBR), ISSN 2630-5488, Istanbul University Press, Istanbul, Vol. 48, Iss. 2, pp. 176-196, <https://doi.org/10.26650/ibr.2019.48.0001>

This Version is available at:

<https://hdl.handle.net/10419/250227>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by-nc/3.0/>



## Consumer Attitude towards Organic Foods: A Multigroup Analysis across Genders\*

Evrin Erdoğan Yazar<sup>1</sup> , Murat Burucuoğlu<sup>2</sup> 

### Abstract

Environmental pollution, modern farming practices and animal transmitted diseases have led consumers to have food safety and health concerns regarding organic foods. This research aims to examine the relationship between consumers' health consciousness, food safety concerns, attitudes towards organic products, and intention to purchase organic food products. For this purpose, we first developed a research model; then, we tested the research model based on gender differences. According to the results of the research, the attitude toward organic food is a powerful indicator of the consumer's intention to purchase organic food. Health consciousness, food safety concerns, attitudes, and intentions have a significant relationship with each other. As a result of the gender based binary model comparison, the attitudes and intentions of male and female consumers towards organic food are different. Participants' increased awareness of health consciousness and food safety concerns increase the relevance of organic products, and has an impact on the development of the organic product market.

### Keywords

Health consciousness, Food safety concern, Organic food, Attitude, Gender

\* This study which was conducted verbally at the 1st Agriculture and Food Ethics Congress (International Participation) held in Ankara, Turkey on March 10-11, 2017 and published in full text with a headline "A Research On Determinants Of Consumers' Purchasing Intention For Organic Food" is a modification of the present paper, increasing the data used, enriched in methods and content, differentiated and expanded.

1 **Corresponding author:** Evrin Erdoğan Yazar (Asst. Prof. Dr.), Ondokuz Mayıs University, Faculty of Economics and Administrative Sciences, Department of Business, Samsun, Turkey. E-mail: [evrin.erdogan@omu.edu.tr](mailto:evrin.erdogan@omu.edu.tr) ORCID: 0000-0001-8689-4137

2 Murat Burucuoğlu (Asst. Prof. Dr.), Ondokuz Mayıs University, Faculty of Economics and Administrative Sciences, Department of International Trade and Logistics, Samsun, Turkey. E-mail: [murat.burucuoglu@omu.edu.tr](mailto:murat.burucuoglu@omu.edu.tr) ORCID: 0000-0001-8560-6420

**To cite this article:** Erdogan Yazar, E., & Burucuoglu, M. (2019). Consumer attitude towards organic foods: A multigroup analysis across genders. *Istanbul Business Research*, 48(2), 176-196. <http://doi.org/10.26650/ibr.2019.48.0001>

## **Consumer Attitude towards Organic Foods: A Multigroup Analysis across Genders**

Chemical applications developed to increase productivity in agricultural production threaten human and environmental health. While the various chemicals used increase productivity in agricultural products, they can lead to permanent and irreversible damage to human and environmental health. Increases in world population, concerns about the sustainability of resources, urbanization and emptying of rural areas, and changes from the media in the agricultural population, etc. increased the importance of productivity in food production; so these factors have led to the use of a large number of additives, which can lead to damage to human health at every stage, from the production to the processing of agricultural products, to increase productivity. Consumers who were producers in the old ages become consumers in today's conditions, human behavior as a consumer has become quite different compared to pre-modern and modern times thanks to the many communication possibilities. Consumers who are defined in the information society have a high awareness of health and the environment, and draw a profile that is more relevant to food consumption issues. The increase in organic production and consumers' interest in organic products can be regarded as a result of this situation.

The reasons for the increase in the purchase of organic products are evaluated in two respects in the literature. The first of these is the concern about the individual's own health and the second are the animal's health and environmental concerns (Roddy et al., 1996; Verbeke and Viaene, 2000; Zanolli and Naspetti, 2002; Padel and Foster, 2005). Health is the strongest determinant of consumer choice among organic factors in all of these factors (Magnusson et al., 2003; O'Donovan and McCarthy, 2002). The other key determinants are food safety and quality (Krystallis and Chrysohoidis, 2005; Chen, 2009; Magnusson et al., 2003). Apart from these factors, values such as security, hedonism, impulse, universalism, self-direction, helpfulness, personal image, self-identity, power, emotions, social norms, subjective norms, personal norms or moral norms, ethical identity, attitudes towards organic products and demographic factors are considered as factors affecting the purchase of organic products by consumers (Grunert and Julh, 1995; Chinnici et al., 2002; Honkanen et al., 2006; Lea and Worsley, 2005; Tarkiainen and Sundqvist, 2005; Finch, 2006; Michaelidou and Hassan, 2008; Aertsense et al., 2009). Consumers are more conscious of the food preferences than ever. Factors such as nutritional value, health and quality of products, using environmentally sensitive production methods for cultivation and food safety lead consumers to be interested in organic products and develop the organic products market (Grunert, 2005; Tan et al., 2017). Health consciousness is the primary motivation for the consumer to consume organic products (Basha et al., 2015). Most consumers think that organic products are healthier and more reliable than traditional products, and the consumption of organic products reduces their anxieties about individual health. They also think that organic products

have a significant influence in maintaining a healthy life. For this reason, they develop a positive attitude towards organic products (Chen, 2009). On the other hand, although food production technologies and innovations that have evolved over the past two decades make food products healthier, many scandals that have emerged regarding food safety have increased food safety concerns for consumers (Banati, 2011). Increasing food safety concerns also affects consumers' attitudes towards organic products (Schifferstein and Oude Ophuis, 1998). Consumers' food safety concerns lead to an increase in the demand of organic products and make consumers more interested in organic products. Examining the underlying factors and their relationship is highly important to understand consumer behaviors towards organic food products. In addition; most studies indicate that some socio-demographic factors like age, gender, level of income, education etc. has vital importance for understanding consumers' organic food acceptance (Omar et al., 2016; Sarıkaya, 2007; Magnusson et al., 2001; Davies et al., 1995; Lea and Worsley, 2005; Paul and Rana, 2012; Tsakiridou et al., 2008). Gender has been seen an important demographic factor for explaining the consumer food preferences. Based on the past studies; there is also a relationship between organic consumption and consumer gender (Davies et al., 1995; Lea and Worsley, 2005, Van Doorn and Verhoet, 2011; Uria et al., 2008).

The motivation of the recent study is to determine the relationship between underlying factors that have impacts on consumers' attitudes towards organic foods and find out that whether gender makes any difference in these relationships. The originality of this study is that; we offer a model which considers relationships amongst health consciousness, food safety concerns, attitude towards organic foods and intention to purchase across the gender context using the multigroup analysis in SEM (Structural Equation Modelling). Many studies in the literature have examined the relationship amongst health consciousness, food safety concerns, attitudes towards organic products, and intention to purchase. However, it seems that there are limited studies on the relationship between health consciousness and food safety concerns. The increase in healthy consciousness will lead consumers to make more discriminating choices. In previous studies, consumers find that organic products are healthier than conventional foods, suggesting a relationship between health consciousness and food safety concerns. The relation between the main model created with variables such as health consciousness, food safety, attitudes towards organic products, intention to purchase organic products and the sub model based on gender differences was investigated in our research aimed to examine the attitudes and purchasing behaviors of consumers towards organic products.

### **Conceptual Framework**

Health consciousness is defined as the level of health concerns that are integrated into the daily activities of the conscious individual (Jayanti and Burns, 1998). Health conscious

consumers want to achieve a desirable subjective well-being and strive for the maintenance of a healthy life (Kim and Chung, 2011). Being healthy is seen as an important source of motivation for consumers' organic food purchasing behavior (Schifferstein and Ophuis, 1998). According to the research of Magnusson et al. (2003) there is a strong relationship between health consciousness and attitudes towards organic foods, purchasing intentions and purchasing behavior. Garcia and de Magistris (2007), Chen (2009), and Kriwy and Mecking (2012), Xie et al. (2015), Teng and Lu (2016) support with their studies that there is a positive relationship between health consciousness and organic product consumption. It is understood in some studies in the literature that health consciousness positively affects the attitude toward organic foods (Michaelidou and Hassan, 2008; Toklu and Ustaahmetoglu, 2016) but it does not affect the intention to purchase (Michaelidou and Hassan, 2008; Ustaahmetoglu ve Toklu, 2015; Toklu ve Ustaahmetoglu, 2016). Tarkiainen and Sundqvist (2005) and Chen (2007) found no significant relationship between health consciousness and attitudes towards organic products. On the basis of this researches, the following hypotheses have been developed.

**H<sub>1</sub>:** Health consciousness positively affects the attitude toward organic food products.

**H<sub>2</sub>:** Health consciousness positively affects the consumer intention to purchase organic food products.

Worldwide food safety incidents and many environmental events have increased consumers' concerns about food quality, safety and environmental impacts (Teng and Lu, 2016). Bird flu, mad cow disease, foot-and-mouth disease, the Belgian dioxin scandal (Rahnama, 2017) and pesticides used in modern agriculture practices increase consumers' food safety concerns (Chen, 2007). Consumers are increasing their concerns about food safety by increasing their demand for healthy products. The quality of produced foods and the fact that consumers can reach safe food has a strong influence on the consumer's health (Yee et al., 2005). Hence, consumers may prefer organic products instead of conventional products containing pesticides. Magnusson et al. (2001), Lea and Worsley (2005) ve Petrescu and Petrescu-Mag (2015), Cengiz and Senel (2017) have found that consumers are more likely to perceive organic foods as healthier than conventional foods in their studies. Michaelidou and Hassan (2008) have found that food safety positively affects the attitude towards organic products, but it does not affect the intention to purchase. Ustaahmetoglu and Toklu (2015) have pointed out that food safety affects the intention of buying organic food. Toklu and Ustaahmetoglu (2016) have found that food safety does not affect the attitude towards organic products and affects the consumer intention to purchase organic food. The fact that consumers find that organic products are healthier than conventional products shows their food safety concerns will increase as health consciousness increases. The following hypotheses were proposed based on this researches.

**H<sub>3</sub>:** Food safety positively affects consumers’ attitudes towards organic food products.

**H<sub>4</sub>:** Food safety positively affects consumers’ intention to purchase organic food products.

**H<sub>5</sub>:** Health consciousness positively affects consumers’ food safety concerns.

According to the Planned Behavior Theory (Ajzen, 1991); attitude, perceived behavioral control, and subjective norm behavior are three independent determinants of behavioral intention. As a determiner of behavioral intentions; the attitude is defined as “a person has a favorable or unfavorable evaluation or appraisal of the behavior in question” (Ajzen, 1991: 188). According to the Theory of Planned Behavior; attitude has a high relationship with individual behavior and behavioral intentions. In other words, the more positive attitude towards an individual behavior is the more positive interest towards developing that behavior. The positive attitudes of consumers towards organic products will also positively reflect their purchasing behavior. In this context, Magnusson et al. (2003), Tarkiainen and Sundqvist (2005), Arvola et al. (2008) found that consumers’ attitudes towards organic products in organic food purchases were influential. The hypothesis established in this context is as follows:

**H<sub>6</sub>:** Consumers’ attitudes towards organic food products positively affect the consumer intention to purchase organic food.

Many studies have been carried out in the literature on gender and organic product buying behavior. Van Doorn and Verhoet (2011) found that female consumers have a more positive attitude towards organic products than male consumers. Urena et al. (2008) showed that female consumers have a more favorable attitude towards purchasing and consuming organic products than men but male consumers are willing to pay more for organic products than female consumers. Rahnama (2017) suggested that female consumers are more willing to buy organic products. Ustaahmetoglu and Toklu (2015) have found that there is no significant

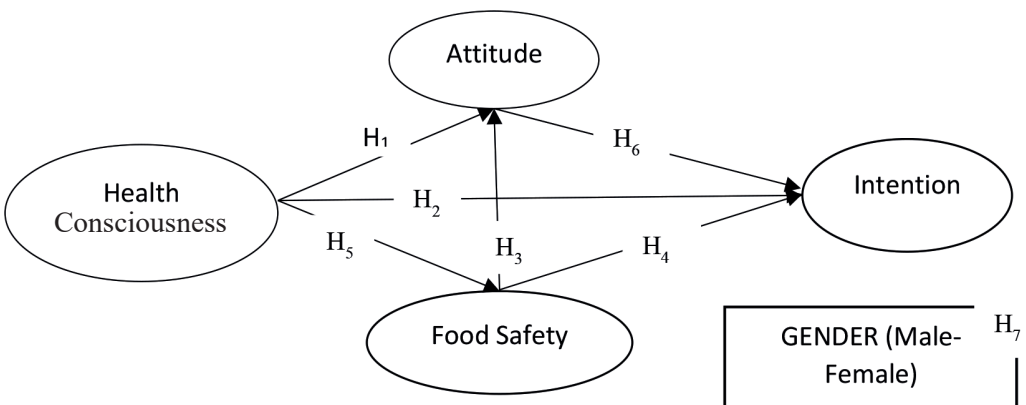


Figure 1. Proposed research model

relationship between gender and health consciousness, food safety and attitudes towards organic products. The following hypothesis has been established based on studies that have not examined the relationship between gender and organic products. The hypothesis established in this context is as follows:

**H<sub>7</sub>:** In the proposed research model, consumers' gender differences differentiate their approaches to organic food products.

On the basis of literature review a research model framework has been developed. Figure 1 shows the proposed research model.

## **Research Methodology**

### **Data Collection and Sample**

The sample of the research consists of consumers living in Turkey. A total of 388 participants were reached within the scope of the research. An online survey was used to collect data in the study. Online survey was delivered to participants through advertising and various sharing on social media platforms. The survey included statements about the health consciousness, the food safety concerns, and the attitude towards organic food. The food safety concern scale used in the study was adapted from the studies of Roddy et al. (1996) and Michaelidou and Hassan (2008); the health consciousness scale was from studies of Gould (1988) and Michaelidou and Hassan (2008); the attitude and purchase intention scale was adapted from the studies of Ajzen (1991) and Michaelidou and Hassan (2008). There were six statements on the health consciousness scale, three statements on the food safety concerns scale, two statements on the attitude scale against organic food, and three statements on the intent to purchase organic food (see Appendix I). The survey statements about the health consciousness and the food safety concerns of participants measured on 5 point scales from absolutely disagree to absolutely agree. Due to the fact that consumers in the organic product market in Turkey often have to choose between a limited variety and few alternatives for organic product, no specific product or product group was specified in the statements about organic products. Participants were asked to evaluate organic products in general. The survey statements about participants' attitudes towards organic products measured on 5 point scales from very negative to very positive and not useful to very useful. The statements regarding the intention to purchase were prepared to determine the participants' buying probability of organic products in the coming weeks, measured on 5 point scales. In the final part of the survey, there are questions to determine the demographic characteristics of the participants.

In the research methodology, firstly, we investigated the normal distribution with skewness and kurtosis because the Structural Equation Modelling (SEM) approach requires

a normal distribution. Kline (2011:63) stated that if skewness absolute values are not greater than 3 and kurtosis absolute values are not greater than 10, the data is accepted as normal distribution. A descriptive analysis was conducted to analyze means for health consciousness, food safety, attitudes towards organic products, intention to purchase organic products and frequencies for demographic variables (see Appendix II). After introducing descriptive statistics, structural equation modeling (SEM) was used to test the research model which contains the relationships based on the literature. A measurement model, referred to as Confirmatory Factor Analysis (CFA), performed to test the validity and reliability of the constructs in the model. In the evaluation of the structural model, firstly the goodness of the model fit was examined.

The hypotheses were tested after the constructs were evaluated according to the measurement model criteria. Regression coefficient, t-values, and p values were used in the evaluation of the hypotheses. In the scope of the research, to determine whether the research model is applicable for male and female, the multi-group SEM analysis was used. Finally, differences based on gender were reported with the help of constrained and unconstrained models.

### The Demographic Characteristics

Participants generally appear to have a close distribution of well-educated and younger consumers and almost gender-based equivalence. The health consciousness scale mean 3.63 (SD: 0.783), the food safety scale mean 4.25 (SD: 0.800), the organic food attitude scale mean 4.12 (SD: 0.879), and the organic food intention scale mean 3.60 (SD: 1.109). Participants' health consciousness and food safety concerns are at a level close to high level that is more than the scale average.

The demographic characteristics of the participants are given in Table 1.

Table 1

*The Demographic Characteristics of the Participants*

<b>N:388</b>	<b>n</b>	<b>%</b>	<b>N:388</b>	<b>n</b>	<b>%</b>
<b>Age</b>			<b>Education</b>		
18 and less	20	5.2	Less than High School	24	6.2
19-30	215	55.4	High School	64	16.5
31-50	112	28.9	Bachelor Degree	200	51.5
51 and over	41	10.6	Master Degree and PhD	100	25.8
<b>Gender</b>			<b>Marital Status</b>		
Male	185	47.7	Single	221	57.0
Female	203	52.3	Married	167	43.0



### Measurement Model Validity and Reliability

Health consciousness, food safety concerns, attitudes towards organic food and purchasing intention variables measurement model which constituted the concept model of the research was developed. In assessing the measurement model, goodness of fit and factor loadings, Cronbach’s Alpha (C.A), Composite Reliability (C.R.), average variance extracted (AVE), the correlation between the structures and discriminant validity are used in assessing the validity of the structures.

That a good fit  $\chi^2/df$  is less than 2 and RMSEA value is less than 0.05 mean a good fit, also the fact that RMSEA value is less than 0.08 implies an acceptable fit (Schermelleh-Engel et al., 2003). The NFI value is between 0 and 1, and higher values indicate better fit (Hair et al., 2006). Values of GFI 0.90 and above, AGFI 0.80 and above (Gefen et al., 2000), CFI 0.95 and above indicate a good fit (Hu and Bentler, 1999; Hooper et al., 2008). That the GFI and RMSEA values are at satisfactory levels represents model fit. It is stated that a model should only be rejected if the GFI value is lower than 0.80 and RMSEA is higher than 0.10 (Muhherjee and Malhotra, 2006; Wang, 2017). Chow et al. (2001) state that values above 0.80 for GFI, CFI and IFI values are acceptable.

The model fit of the Measurement Model, Model1, Unconstrained Model and Constrained Model are given in Table 2.

Table 2  
*Research Models Fit Index*

Model Fit	Good Fit	Acceptable Fit	Measurement Model	Model1	Unconstrained Model	Constrained Model
$\chi^2/df$	$0 \leq \chi^2/df \leq 2$	$2 < \chi^2/df \leq 3$	1.981	1.981	1.666	1.735
RMSEA	$0 \leq RMSEA \leq .05$	$.05 < RMSEA \leq .08$	.050	.050	.042	.044
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI < .95$	.949	.949	.921	.908
AGFI	$.90 \leq AGFI \leq 1.00$	$.85 \leq AGFI < .90$	.924	.924	.882	.877
CFI	$.97 \leq CFI \leq 1.00$	$.95 \leq CFI < .97$	.977	.977	.968	.961
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI < .95$	.954	.954	.925	.913

Source: Adapted from Schermelleh-Engel et al. (2003:52).

As given in Table 2 the measurement model, Model1, unconstrained model and constrained model have an acceptable model fit index.

To make the convergent validity of the structures in the model, it is recommended that the standardized factor loadings should be .50, ideally over .70, C.A. value is used to internal consistency among the items and the recommended value level of .70 and higher, the recommended C.R. value should be over .70, AVE for each construct should be more than .50. In ensuring discriminant validity, the square root of the AVE values must be high in relation to all constructs (Fornell and Larcker, 1981; Hair et al., 2006; Pino et al., 2012).

Table 3 shows the convergent validity, and Table 4 presents the discriminant validity (See appendix III, for more information about the measurement model).

Table 3

*Convergent Validity of Structures*

Factors	Factor Loads			S.E.	C.R.	p	C.A	C.R	AVE
	Male	Female	M.Model						
HC6<---health	.790	.719	.757	.058	15.563	.000			
HC5<---health	.822	.777	.799			.000			
HC4<---health	.823	.764	.801	.056	16.613	.000	.877	.875	.540
HC3<---health	.697	.684	.698	.055	14.125	.000			
HC2<---health	.691	.739	.715	.054	14.501	.000			
HC1<---health	.549	.704	.624	.062	12.316	.000			
FS3<---safety	.724	.847	.777	.060	15.292	.000			
FS2<---safety	.940	.797	.872			.000	.822	.827	.616
FS1<---safety	.733	.639	.695	.056	13.786	.000			
OF1<---intention	.912	.891	.905			.000			
OF2<---intention	.881	.925	.903	.036	25.317	.000	.911	.912	.775
OF3<---intention	.804	.847	.831	.040	22.007	.000			
OFA1<---attitude	.821	.922	.868			.000			
OFA2<---attitude	.916	.723	.815	.063	14.530	.000	.829	.829	.709

As seen Table 3, C.A values ranges from .822 to .911; C.R. values ranges from .827 to .912 and AVE values ranges from .540 to .775, all values related to convergent validity met the recommended criterion. The male and female measurement model factor loading and factor construct are similar.

Table 4

*Discriminant Validity of Structures*

	Intention	Health	Safety	Attitude
Intention	(0.880)*			
Health	0.308	(0.735)*		
Safety	0.244	0.575	(0.785)*	
Attitude	0.676	0.345	0.323	(0.842)*

\* The square root of AVE values

The structures included in the research model are above the threshold values that should be in the validity of convergence and discriminant. Based on these values, we can say that the proposed research model represents an adequate validity and reliability.

## Testing the Structural Model and Results

Multi-group SEM analysis is used for comparing two groups in a cross-sectional sample and the hypotheses were tested using SPSS Amos 20. Multi-group SEM analysis proceeded to develop good-fitting models in separate runs for each group. Separate testing provides an

overview of how consistent the model results are. Models are then tested in one run with none of the parameters across models constrained to be equal. This unconstrained multiple group model provides a basis against which to evaluate more restricted models. After baseline model estimation, increasingly more strict constraints are specified by constraining various parameters across all groups to get the constrained parameters. When parameters are constrained, they are forced to be equal to one another. After each set of constraints is added, a chi-square difference test is performed for each group between the less restrictive and the more restrictive models. The goal is to not degrade the models by constraining parameters across the groups. For this reason, the chi-square difference must be non-significant. If a significant difference in chi-square is found between the models at any stage, the Langrange Multiplier (LM) test is analyzed to find the specific parameters that are different in the groups, and these parameters are estimated separately in each group (Tabacnick and Fidell, 2007).

In the scope of the multi-group SEM, we tested all models separately. Model1, which was created without grouping, was tested first. Table 5 and Figure 2 below presents the results of the Model1 analysis.

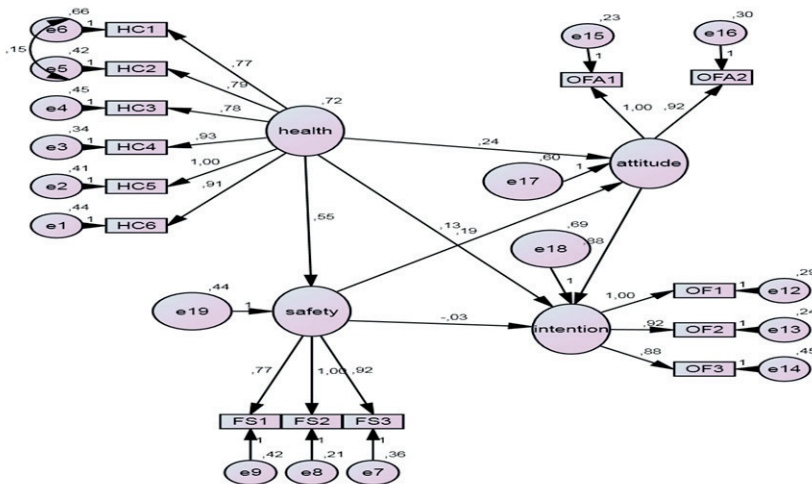


Figure 2. The Model1 SEM analysis path diagram

Table 5

The Results of Model1 Analysis

	Estimates	S.E.	C.R.	p	Hypothesis
Safety <--- Health	.552	.055	9.985	.000	Supported*
Attitude <--- HHHhealth	.235	.073	3.213	.001	Supported*
Attitude <--- Safety	.192	.077	2.491	.013	Supported**
Intention <--- Health	.129	.082	1.564	.118	Non- Supported
Intention <--- Attitude	.882	.082	10.778	.000	Supported*
Intention <--- Safety	-.030	.086	-3.50	.727	Non- Supported

Note: \* Significant at. 0.001; \*\*Significant at. 0.05; \*\*\*Significant at. 0.10

The strongest relationship in Model1 appears to be the attitude towards organic food products and the consumer’s intention to purchase organic food products. Health consciousness affects food safety concerns and attitudes towards organic products positively. The relationship between health consciousness and the consumer’s intention to purchase organic food products is not supported. Food safety concern has statistically significant and positive effect on attitudes towards organic food products but has no statistically significant effect on organic food consumption intention.

After testing Model1, we also tested the structural model separately for the male and female sample. Table 6 shows the Unconstrained Parameter and Table 7 shows the Constrained Parameter of each group.

Table 6  
*Unconstrained Parameter*

Structural Relationship	Male		Female	
	Unstandardized regression weight	Probability	Unstandardized regression weight	Probability
Safety <--- Health	.513	.000	.599	.000
Attitude <--- HHHhealth	.178	.028	.273	.034
Attitude <--- Safety	.103	.206	.345	.011
Intention <--- Health	-.025	.764	.285	.007
Intention <--- Attitude	.988	.000	.730	.000
Chi-square		236.517		
Degrees of freedom		142		
Probability		.000		
CMIN/DF	1.666	AGFI	.882	
RMSEA	.042	NFI	.925	
GFI	.921	CFI	.968	

Note: \* Significant at. 0.001; \*\*Significant at. 0.05; \*\*\*Significant at. 0.10

As seen in the unconstrained parameter results, not all model paths have a significant relationship for each group. Based on the multi-group modification, the path between food safety concern and organic food purchase intention was removed from the model to get the constrained parameters.

Table 7  
*Constrained Parameter*

Structural Relationship	Male		Female	
	Unstandardized regression weight	Probability	Unstandardized regression weight	Probability
Safety <--- Health	.574	.000	.574	.000
Attitude <--- HHHhealth	.239	.001	.239	.001
Attitude <--- Safety	.189	.012	.189	.012
Intention <--- Health	.106	.115	.106	.115
Intention <--- Attitude	.879	.000	.879	.000
Chi-square	272.350			

Degrees of freedom	157		
Probability	.000		
CMIN/DF	1.735	AGFI	.877
RMSEA	.044	NFI	.913
GFI	.908	CFI	.961

Note: \* Significant at. 0.001; \*\*Significant at. 0.05; \*\*\*Significant at. 0.10

Although separate testing provides a general view of how consistent the model results are, it does not constitute testing for significant differences in the model’s parameters between groups. A chi-square difference test was applied to see if the difference is significant or not to constitute testing for differences. The fact that the constrained model chi-square value (272.350; df: 157) is higher than the unconstrained model value (236.517; df: 142) degree of freedom differences 15 p value .002 shows that the behaviors of female and male towards their organic products differ in the proposed model. The attitude towards organic products in the male consumer model affects the organic food purchasing behavior significantly and positively. There is a positive and significant relationship between health consciousness, food safety concerns and attitudes towards organic products. Other research hypotheses have not been supported in the subset of male consumers. The attitude towards organic products in the model of female consumers positively and significantly affects the intention to purchase organic products. Health consciousness positively and significantly affects food safety concerns, attitudes towards organic food, and the intention to purchase organic products. Food safety concerns have a positive and significant effect on attitudes towards organic products. In the following table, there is a summary of SEM and multi group analysis results.

Table 8  
*The Summary of SEM and Multi-Group Analysis Results*

Hypothesis	Model 1	Male	Female
Safety <--- Health	S	S	S
Attitude <--- HHHhealth	S	S	S
Attitude <--- Safety	S	N/S	S
Intention <--- Health	N/S	N/S	S
Intention <--- Attitude	S	S	S
Intention <--- Safety	N/S	---	---

S: Supported ; N/S: Non-Supported

### Conclusion and Discussion

Attitudes affecting consumers’ purchasing behavior of organic food, conceptual model formed by variables of health consciousness, food safety concerns and sub models based on grouping were examined in this study. The strongest impact in the research results is between the attitude towards organic products and the intention to purchase organic products. The positive attitude of consumers towards organic products strengthens their intention to purchase. From this result, it can be said that the attitudes towards organic products are a

strong determinant of the intention to purchase organic food. This finding is parallel to many studies in the literature (Yazdanpanah and Forouzani, 2015; Zhou et al., 2013; Yadav and Pathak, 2016; Magnusson et al. 2003; Tarkiainen and Sundqvist, 2005; Arvola et al., 2008).

Another important impact, according to the research findings, is between health consciousness and food safety concerns. It is possible to say that food safety concerns are also increasing due to the increase in consciousness levels of consumers in terms of being healthy. As consumers become more health-conscious, live a quality life, protect themselves from diseases, and become more conscious about their health, concerns about the safety of the food they consume can also increase. As Chen et al. (2014) stated in their studies, the consumer is highly concerned with food safety in personal health issues.

Another important finding of the research is the attitude towards health consciousness and organic food. The increase in health consciousness of the consumers leads to a more positive attitude towards organic food. There was no significant relationship between health consciousness and the intention to purchase organic products in the study. According to Michaelidou and Hassan (2008) and Toklu and Ustaahmetoglu's (2016) works, health consciousness has no effect on the purchasing intention while it has an influence on the attitude toward organic products. However, in the literature there are studies supporting the influence of health consciousness on the intention to purchase organic products (Yardav and Pathak, 2016; Wee et al. 2014). The findings supported previous studies, and the relationship between health consciousness and attitudes towards organic products and the intention to purchase organic products should be tested with other studies.

Food safety concerns have a statistically significant and positive effect on attitudes towards organic products but have no statistically significant effect on organic food consumption intention. In agreement with the studies of Wee et al. (2014) and Ustaahmetoglu and Toklu (2015) in the literature, food safety concerns affect the intention to purchase organic products. In the study of Michaelidou and Hassan (2008), food safety concerns affect the attitude towards organic products but they don't affect the intention to purchase. In Toklu and Ustaahmetoglu (2016) studies, concerns about food safety positively influence the attitude toward organic products but they don't affect the intention to purchase.

As a result of the multi-group SEM analysis, it is observed that male and female consumers have significant differences in the proposed model of organic product buying behavior. In the Iranto's (2015) study, it was found that male and female consumers differed significantly in terms of attitudes and purchasing intentions towards organic products; also, female consumers were more interested in buying organic products than male consumers. Our study supports this finding. Attitudes towards organic products strongly influence the intention to purchase in both consumer groups. Another strong impact for both groups is health consciousness and food safety concerns. When the influence of health consciousness on

organic food is examined, it can be seen that male consumers have a relatively strong effect. The fact that health consciousness affects food safety concerns more in female consumers may be due to the fact that more variables influence the attitudes of female consumers. Female consumers' concerns about food safety affect their attitudes towards organic products. This moderate effect can be attributed to the roles that female consumers play in society. Social issues, such as taking the role of buyer and explorer in meeting the needs of the family, including food, in particular, keeping children's healthy nutrition in the foreground, especially in families with children may affect attitudes towards organic food. Lea and Worsley (2005) and Lockie et al. (2002) stated similarly that the differences in the behavior of women and men in purchasing organic products are due to the fact that women take more responsibility for the issues related to feeding the family. As the health consciousness of female consumers' increases, the intention of purchasing organic food seems to increase. The fact that the female purchasers take up more of their purchasing role in society than male consumers is pushing the male consumers to develop attitudes, and directing female consumers both to develop attitudes and to buy.

There are some limitations in the current study. First, the data were collected by convenience sampling and the research results are limited to this sample. As a consequence, the research findings cannot be generalized. Second, the research model included the relationship amongst health consciousness, food safety, attitudes and intentions. The research model can be expanded by adding variables related to organic food product purchasing motivations and barriers in future research. Third, this study examined organic food products in general. Therefore, in future investigation of researchers specific product groups will contribute to the development of theory and practice.

## Practical Implications

Increases in health consciousness and food safety concerns globally drive consumers to organic products. All practitioners and professionals can contribute to the development of the organic product market, taking into account changes in health consciousness and food safety concerns. Gender in the organic product market can be used as a market segmentation criterion.

**Grant Support:** The authors received no financial support for this work.

## References

- Aertsens, J., Verbeke, W., Mondelaers, K., & Van Huylenbroeck, G. (2009). Personal determinants of organic food consumption: a review. *British Food Journal*, *111*(10), 1140-1167. Doi: 10.1108/00070700910992961
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211. Doi: 10.1016/0749-5978(91)90020-T

- Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the Theory of Planned Behaviour. *Appetite*, 50(2), 443-454. Doi: 10.1016/j.appet.2007.09.010
- Bánáti, D. (2011). Consumer response to food scandals and scares. *Trends in Food Science & Technology*, 22(2), 56-60. Doi: 10.1016/j.tifs.2010.12.007
- Basha, M. B., Mason, C., Shamsudin, M. F., Hussain, H. I., & Salem, M. A. (2015). Consumers attitude towards organic food. *Procedia Economics and Finance*, 31, 444-452. Doi: 10.1016/S2212-5671(15)01219-8
- Cengiz, H., & Şenel, M. (2017). Investigating consumer motivations in the purchase of organic foods using Zaltman metaphor elicitation technique. *Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 7(1), 56-69.
- Chen, J., Lobo, A., & Rajendran, N. (2014). Drivers of organic food purchase intentions in mainland China—evaluating potential customers' attitudes, demographics and segmentation. *International Journal of Consumer Studies*, 38(4), 346-356. Doi: 10.1111/ijcs.12095
- Chen, M. F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference*, 18(7), 1008-1021. Doi: 10.1016/j.foodqual.2007.04.004
- Chen, M. F. (2009). Attitude toward organic foods among Taiwanese as related to health consciousness, environmental attitudes, and the mediating effects of a healthy lifestyle. *British Food Journal*, 111(2), 165-178. Doi: 10.1108/00070700910931986
- Chinnici, G., D'Amico, M., & Pecorino, B. (2002). A multivariate statistical analysis on the consumers of organic products. *British Food Journal*, 104(3/4/5), 187-199. Doi: 10.1108/00070700210425651
- Chow, J. C. C., Snowden, L. R., & McConnell, W. (2001). A confirmatory factor analysis of the BASIS-32 in racial and ethnic samples. *The Journal of Behavioral Health Services and Research*, 28(4), 400-411. Doi: 10.1007/BF02287771
- Davies, A., Titterton, A. J., & Cochrane, C. (1995). Who buys organic food? A profile of the purchasers of organic food in Northern Ireland. *British Food Journal*, 97(10), 17- 23. Doi: 10.1108/00070709510104303
- Finch, J. E. (2006). The impact of personal consumption values and beliefs on organic food purchase behavior. *Journal of Food Products Marketing*, 11(4): 63-76. Doi: 10.1300/J038v11n04\_05
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. Doi: 10.2307/3151312
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega*, 28(6), 725-737.
- Gould, S. J. (1988) Consumer attitudes toward health and health care: a differential perspective. *Journal of Consumer Affairs*, 22, 96–118. Doi: 10.1111/j.1745-6606.1988.tb00215.x
- Gracia, A., & de Magistris, T. (2007). Organic food product purchase behaviour: A pilot study for urban consumers in the South of Italy. *Spanish Journal of Agricultural Research*, 5(4), 439-451.
- Grunert, K. G. (2005). Food quality and safety: consumer perception and demand. *European review of agricultural economics*, 32(3), 369-391. Doi: 10.1093/eurrag/jbi011
- Grunert, S. C., & Juhl, H. J. (1995). Values, environmental attitudes, and buying of organic foods. *Journal of Economic Psychology*, 16(1), 39-62. Doi: 10.1016/0167-4870(94)00034-8
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis (Vol.6)*. UpperSaddleRiver, NJ: PearsonPrenticeHall.



- Honkanen, P., Verplanken, B., & Olsen, S. O. (2006). Ethical values and motives driving organic food choice. *Journal of Consumer Behaviour*, 5(5), 420-430. Doi: 10.1002/cb.190
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, 6(1), 53-60.
- Hu, L. T., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multi-Disciplinary Journal*, 6(1), 1-55. Doi: 10.1080/10705519909540118
- Irianto, H. (2015). Consumers' attitude and intention towards organic food purchase: An extension of theory of planned behavior in gender perspective. *International Journal of Management, Economics and Social Sciences*, 4(1), 17-31.
- Jayanti, R. K., & Burns, A. C. (1998). The antecedents of preventive health care behavior: An empirical study. *Journal of the Academy of Marketing Science*, 26(1), 6. Doi: 10.1177/0092070398
- Kim, Y. H., & Chung, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of consumer Marketing*, 28(1), 40-47. Doi: 10.1108/07363761111101930
- Kriwi, P., & Mecking, R. A. (2012). Health and environmental consciousness, costs of behaviour and the purchase of organic food. *International Journal of Consumer Studies*, 36(1), 30-37. Doi: 10.1111/j.1470-6431.2011.01004.x
- Krystallis, A., & Chryssohoidis, G. (2005). Consumers' willingness to pay for organic food: Factors that affect it and variation per organic product type. *British Food Journal*, 107(5), 320-343. Doi: 10.1108/00070700510596901
- Kline, R. B. (2011). Principles and practice of structural equation modeling (3rd edn). New York: Guilford Press.
- Lea, E., & Worsley, T. (2005). Australians' organic food beliefs, demographics and values. *British Food Journal*, 107(11), 855-869. Doi: 10.1108/00070700510629797
- Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating 'green': Motivations behind organic food consumption in Australia. *Sociologia ruralis*, 42(1), 23-40. Doi: 10.1111/1467-9523.00200
- Magnusson, M. K. Arvola, A., Hursti, U. K. K., Åberg, L., & Sjöden, P. O. (2001). Attitudes towards organic foods among Swedish consumers. *British Food Journal*, 103(3), 209-227. Doi: 10.1108/00070700110386755
- Magnusson, M. K., Arvola, A., Hursti, U. K. K., Åberg, L., & Sjöden, P. O. (2003). Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. *Appetite*, 40(2), 109-117. Doi: 10.1016/S0195-6663(03)00002-3
- Magnusson, M. K., Arvola, A., Koivisto Hursti, U. K., Åberg, L., & Sjöden, P. O. (2001). Attitudes towards organic foods among Swedish consumers. *British food journal*, 103(3), 209-227. Doi: 10.1108/00070700110386755
- Michaelidou, N., & Hassan, L. M. (2008). The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. *International Journal of Consumer Studies*, 32(2), 163-170. Doi: 10.1111/j.1470-6431.2007.00619.x
- Mukherjee, A., & Malhotra, N. (2006). Does role clarity explain employee-perceived service quality? A study of antecedents and consequences in call centres. *International Journal of Service Industry Management*, 17(5), 444- 473. Doi: 10.1108/09564230610689777

- O'Donovan, P., & McCarthy, M. (2002). Irish consumer preference for organic meat. *British Food Journal*, 104(3/4/5), 353-370. Doi: 10.1108/00070700210425778
- Omar, N. A., Nazri, M. A., Osman, L. H., & Ahmad, M. S. (2017). The effect of demographic factors on consumer intention to purchase organic products in the Klang Valley: An empirical study. *Geografia-Malaysian Journal of Society and Space*, 12(2).
- Padel, S., & Foster, C. (2005) Exploring the gap between attitudes and behaviour: understanding why consumers buy or do not buy organic food. *British Food Journal*, 107, 606–626. Doi: 10.1108/00070700510611002
- Paul, J., & Rana, J. (2012). Consumer behavior and purchase intention for organic food. *Journal of consumer Marketing*, 29(6), 412-422. Doi: 10.1108/07363761211259223
- Petrescu, D. C., & Petrescu-Mag, R. M. (2015). Organic food perception: fad, or healthy and environmentally friendly? a case on Romanian consumers. *Sustainability*, 7(9), 12017-12031.
- Pino, G., Peluso, A. M., & Guido, G. (2012). Determinants of regular and occasional consumers' intentions to buy organic food. *Journal of Consumer Affairs*, 46(1), 157-169. Doi: 10.1111/j.1745-6606.2012.01223.x
- Rahnama, H. (2017). Effect of consumption values on women's choice behavior toward organic foods: The case of organic yogurt in Iran. *Journal of Food Products Marketing*, 23(2), 144-166. Doi: 10.1080/10454446.2017.1244790
- Roddy, G., Cowan, C. A., & Hutchinson, G. (1996). Consumer attitudes and behaviour to organic foods in Ireland. *Journal of International Consumer Marketing*, 9(2): 41-63. Doi: 10.1300/J046v09n02\_03
- Sarikaya, N. (2007). Organik ürün tüketimini etkileyen faktörler ve tutumlar üzerine bir saha çalışması. *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 14(2), 110-125.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74.
- Schifferstein, H. N., & Ophuis, P. A. O. (1998). Health-related determinants of organic food consumption in the Netherlands. *Food quality and Preference*, 9(3), 119-133. Doi: 10.1016/S0950-3293(97)00044-X
- Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics. London: Pearson Education.
- Tan, B. C., Chai, L. T., & Min, P. S. (2017, April). Attitude Towards Eating "Green": Do Consumer Consciousness, Healthy Lifestyle, and Value Orientation Matter?. In 5th International Conference on Innovation and Entrepreneurship ICIE 2017 (p. 153). [https://www.researchgate.net/profile/John\\_Kean\\_Yew/publication/316362967\\_Innovation\\_Management\\_A\\_Study\\_of\\_Woman\\_Entrepreneurs\\_in\\_Klang\\_Valley/links/58fb8deba32723d79d84976/Innovation-Management-A-Study-of-Woman-Entrepreneurs-in-Klang-Valley.pdf#page=168](https://www.researchgate.net/profile/John_Kean_Yew/publication/316362967_Innovation_Management_A_Study_of_Woman_Entrepreneurs_in_Klang_Valley/links/58fb8deba32723d79d84976/Innovation-Management-A-Study-of-Woman-Entrepreneurs-in-Klang-Valley.pdf#page=168)
- Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British food journal*, 107(11), 808-822. Doi: 10.1108/00070700510629760
- Teng, C. C., & Lu, C. H. (2016). Organic food consumption in Taiwan: motives, involvement, and purchase intention under the moderating role of uncertainty. *Appetite*, 105, 95-105. Doi: 10.1016/j.appet.2016.05.006
- Toklu, İ. T., & Ustaahmetoğlu, E. (2016). Factors affecting consumer attitudes and purchase intention toward organic tea: a field research. *International Journal of Management Economics and Business*, 12(29), 41-61.
- Tsakiridou, E., Boutsouki, C., Zotos, Y., & Mattas, K. (2008). Attitudes and behavior towards organic products: an exploratory study. *International Journal of Retail & Distribution Management*, 36(2), 158-175. Doi: 10.1108/09590550810853093

- Ureña, F., Bernabéu, R., & Olmeda, M. (2008). Women, men and organic food: differences in their attitudes and willingness to pay. A Spanish case study. *International Journal of consumer Studies*, 32(1), 18-26. Doi: 10.1111/j.1470-6431.2007.00637.x
- Ustaahmetoglu, E., & Toklu, İ. T. (2015). A survey on the effect of attitude, health consciousness and food safety on organic food purchase intention. *The International Journal of Economic and Social Research*, 11(1), 197-211.
- Van Doorn, J., & Verhoef, P. C. (2011). Willingness to pay for organic products: Differences between virtue and vice foods. *International Journal of Research in Marketing*, 28(3), 167-180. Doi: 10.1016/j.ijresmar.2011.02.005
- Verbeke, W. A., & Viaene, J. (2000). Ethical challenges for livestock production: Meeting consumer concerns about meat safety and animal welfare. *Journal of Agricultural and Environmental Ethics*, 12(2), 141-151. Doi: 10.1023/A:100953861
- Wang, E. S. T. (2017) Different effects of utilitarian and hedonic benefits of retail food packaging on perceived product quality and purchase intention. *Journal of Food Products Marketing*, 23(3), 239-250. Doi: 10.1080/10454446.2014.885867
- Wee, C. S., Ariff, M. S. B. M., Zakuan, N., Tajudin, M. N. M., Ismail, K., & Ishak, N. (2014). Consumers perception, purchase intention and actual purchase behavior of organic food products. *Review of Integrative Business and Economics Research*, 3(2), 378.
- Xie, B., Wang, L., Yang, H., Wang, Y., & Zhang, M. (2015). Consumer perceptions and attitudes of organic food products in Eastern China. *British Food Journal*, 117(3), 1105-1121. Doi: 10.1108/BFJ-09-2013-0255
- Xie, Biao, Liyuan Wang, Hao Yang, Yanhua Wang, Mingli Zhang, (2015). Consumer perceptions and attitudes of organic food products in Eastern China. *British Food Journal*, 117(3), 1105-1121. Doi: 10.1108/BFJ-09-2013-0255
- Yadav, R., & Pathak, G. S. (2016). Intention to purchase organic food among young consumers: Evidences from a developing nation. *Appetite*, 96, 122-128. Doi: 10.1016/j.appet.2015.09.017
- Yazdanpanah, M., & Forouzani, M. (2015). Application of the Theory of planned behaviour to predict Iranian students' intention to purchase organic food. *Journal of Cleaner Production*, 107, 342-352. Doi: 10.1016/j.jclepro.2015.02.071
- Yee, W. M., Yeung, R. M., & Morris, J. (2005). Food safety: building consumer trust in livestock farmers for potential purchase behaviour. *British Food Journal*, 107(11), 841-854. Doi: 10.1108/00070700510629788
- Zanoli, R., & Naspetti, S. (2002). Consumer motivations in the purchase of organic food: a means-end approach. *British food journal*, 104(8), 643-653. Doi: 10.1108/00070700210425930
- Zhou, Y., Thøgersen, J., Ruan, Y., & Huang, G. (2013). The moderating role of human values in planned behavior: the case of Chinese consumers' intention to buy organic food. *Journal of Consumer Marketing*, 30(4), 335-344. Doi: 10.1108/JCM-02-2013-0482

## **Appendix I**

### **Health Consciousness**

I reflect about my health a lot

I'm very self-conscious about my health

I'm alert to changes in my health

I'm usually aware of my health

I take responsibility for the state of my health

I'm aware of the state of my health as I go through the day.

### **Food Safety Concern**

Nowadays foods mostly contain residues from chemical sprays and fertilizers.

I'm very concerned about the amount of artificial additives and preservatives in food.

The quality and safety of meat nowadays concerns me.

### **Attitude**

My attitude towards organic food products

Organic food products

### **Purchase Intention**

I intend to buy organic food in the next two weeks,

I want to buy organic food in the coming weeks,

Rate your chances of buying organic food in the coming weeks

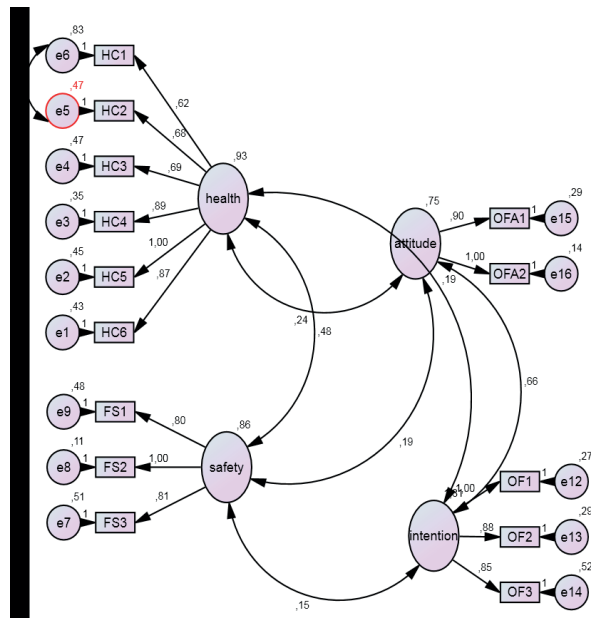
## Appendix II

### Descriptive Statistic of Research

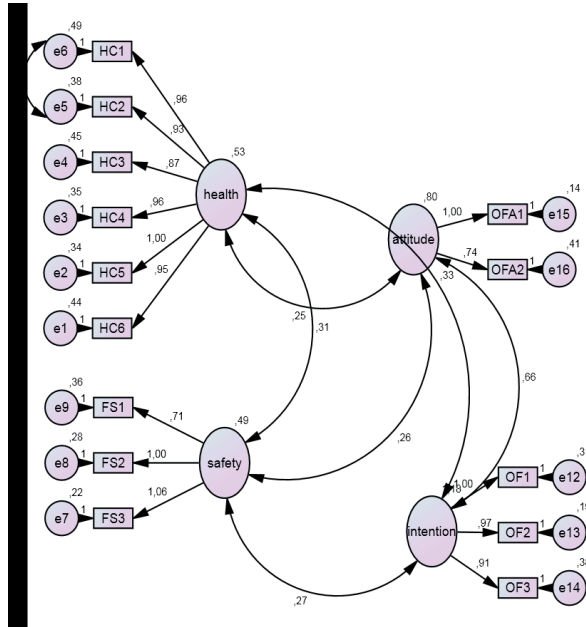
Variables	Mean	SD	Skewness	Kurtosis	Male		Female	
					Mean	SD	Mean	SD
HC1	3.71	1.042	-.861	.222	3.80	.987	3.60	1.093
HC2	3.65	.933	-.875	.449	3.73	.912	3.55	.948
HC3	3.60	.942	-.724	.021	3.67	.924	3.51	.956
HC4	3.63	.981	-.826	.335	3.72	.913	3.52	1.042
HC5	3.78	1.060	-1.183	.965	3.87	.935	3.67	1.176
HC6	3.44	1.013	-.685	-.269	3.52	.956	3.34	1.067
FS1	4.39	.905	-1.956	4.092	4.46	.785	4.32	1.017
FS2	4.23	.933	-1.490	2.363	4.24	.882	4.21	.987
FS3	4.15	.957	-1.257	1.297	4.17	.882	4.11	1.035
OFA1	4.10	.963	-1.196	1.338	4.15	.976	4.04	.948
OFA2	4.16	.939	-1.221	1.323	4.24	.926	4.06	.947
OF1	3.50	1.254	-.418	-.853	3.69	1.222	3.29	1.260
OF2	3.77	1.152	-.704	-.361	3.90	1.145	3.62	1.145
OF3	3.54	1.205	-.484	-.680	3.72	1.166	3.34	1.219

## Appendix III

### The Measurement Model of Male and Female Consumers'



MALE



FEMALE