

# DETERMINANTS OF ORGANIC FOOD PURCHASE BEHAVIOR: A MEDIATION ANALYSIS

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### ABSTRACT

The adoption of sustainable practices is an imperative and urgent need for economies. The food manufacturing processes and the consumption patterns have an impact on the individuals and the atmosphere. This study has been conducted with the aim to understand the determinants of organic food purchase behavior. For that purpose, this study hypothesized the mediation effects of attitudes towards buying organic food between organic food purchase behavior and four consumers' personal factors, green marketing practices and price barriers. The research was carried out in the developing economy of Islamic Republic of Pakistan. Convenience Sampling was used as the sampling technique. For this research, the respondents were 260 consumers of organic foods from the city of Lahore, Pakistan. The technique applied on this study was Process Hayes. The results of the data suggested that attitude towards buying organic food has positive significant mediations between organic food purchase behavior and all of the dependent variables.

**Keywords:** Environmental Concerns; Organic Food Purchase Behavior; Green Marketing



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## 1. Introduction

The degradation and deterioration of the environment and the harmful repercussions of it on human beings and their health, has drastically become a very important topic for research among practitioners (Yadav & Pathak, 2016a). Rapid industrialization, unplanned urbanization, economic activities and growth have not only led to and will further lead to

ecological deterioration which includes soil, water and air but also depletion of natural resources and increasing health issues (Khan & Mohsin, 2017); (Biswas & Roy, 2015). There is growing consensus among consumers that organic products are more health friendly and safer alternatives to conventional foods (Smith & Paladino, 2010); (Bryła, 2016).

Pakistan is an agrarian country that contributes 20% from its agriculture to the overall GDP however out of its 45299-hectare organic area, it only contributes 0.1% to the global organic industry (Rehman et al., 2019). Organic food consumption levels are very low in Pakistan despite their benefits (Raza et al., 2019);(Al-Swidi et al., 2014). The demand and market for organic foods is rapidly increasing and this is consequently making it more important for researchers and marketers to have knowledge about consumption behaviors of consumers towards green foods, such findings will provide better information for practitioners to devise more effective strategies and policies therefore in today's time the understanding of organic behaviors has gained critical importance (Kriwy & Mecking, 2012). Researchers have stressed on the importance of the usage of green marketing practices effectively to influence consumer purchase behaviors (Mohd Suki, 2018);(Hughner et al., 2007). These factors are severely under researched in developing economies (Nguyen et al., 2019).

Previous researches have been carried out in developed countries and have shown multiple factors which influence the purchase of organic foods; environmental concerns, health consciousness, price, quality of foods, taste, availability and safety of the foods (Massey et al., 2018);(Rana & Paul, 2017) . Very few studies have researched the link between attitude and the purchase behavior through price (Wang et al., 2020). In the emerging economy of Pakistan, the literature regarding organic purchase and consumption behaviors is very limited. No such research has been conducted that provides findings of individual factors that impact attitudes towards organic purchases, how green marketing and price play a role and ultimately whether these attitudes convert into organic food purchase behaviors.

This research aims to investigate the role of an individual consumer's personal factors on the attitude towards buying organic food in Pakistan. Furthermore, it also aims to underline the role of those attitudes on organic food purchase behavior. The research examines the role of green marketing and the price barriers on organic food purchase behavior as there is growing need to understand what influences the organic food purchase behavior in such markets. The role of price barriers in a developing market is an important

factor, which will further provide important insight into business managers so they can develop effective strategies to influence consumer behavior towards organic food purchases. This research is significant for marketers and brand managers in Pakistan because it is a developing country that has a rapidly growing population due to which not only the environmental health but human health of the nation is at a constant risk. Pakistan, currently, has one of the worse health indexes in the world. A very limited percentage of the populace is involved in green consumption thus such a research will be important for businesses to understand how they can influence consumer attitudes in favor of sustainable living. As mentioned above, there is limited research in emerging markets and since no such research exists on Pakistan's developing economy thus it will be of valuable importance to the practitioners in the country.

## **2 Hypotheses Development**

### **2.1 Organic Food Purchase Behavior and Environmental Concerns**

Environmental concern has been described as how much people are aware of environmental problems, how much interest they take and how they support the causes that resolve them (Dunlap & Jones, 2002). Generally, consumers who are more invested in environmental issues and show concern are more inclined to pro-environment behavior and show their willingness to spend towards eco-friendly purchases and be a part of the awareness towards environmental sustainability. Such consumers also invest in understanding products and exhibit positive behaviors towards environmental conservation (Albayrak et al., 2013);(Nguyen et al., 2016). Food products such as meat especially beef and pork are known to be a major cause towards environmental degradation as their production leads to water scarcity and wastage and since they are produced in bulk, the production processes cause a lot of harm to environment and many people have reduced their intakes of such products due to the environmental damage their production and manufacturing causes (Elferink et al., 2008); (Hughner et al., 2007). The adoption of a green lifestyle is a reflection of consumer attitudes that promotes sustainability and converts its concern for the environment into actual measures needed to protect the environment (De Magistris & Gracia, 2008). Pro environmental attitudes exhibited by customers have been proven to lead to pro environmental behaviors, consumers make an effort to purchase and consumer items which are helpful to the environment (Kang et al., 2012);(Lee & Jan, 2015); (Nguyen et al., 2016).

Previous empirical studies (Chen, 2009); (Smith & Paladino, 2010);(Aertsens et al., 2011);(Yadav & Pathak, 2016a) showed that a consumer's organic food purchase intention is

positively influenced by their level of concern for the environment. We can argue based on previous literature that consumers that are more aware of environmental issues like to be more involved in pro environment practices and activities. We can also argue that the level of environmental concern a consumer has impacts their attitudes and behaviors towards organic food purchase and consumption. Thus, we hypothesize that:

*H<sub>1</sub>: Attitudes towards buying organic food mediates the relationship between organic food purchase behavior and environmental concerns*

## **2.2 Organic Food Purchase Behavior and Food safety concern**

Due to high numbers of food related incidents and food borne diseases that have happened and harmed human beings all over the world and caused high rates of fatalities (Wang et al., 2018), food safety has now become an extremely important and prioritized issues when health and food choices are concerned (Tsakiridou et al., 2008). Food safety concerns have a lot of different meanings and contexts but in its broadest sense it refers to the worry and concerns consumers have regarding pesticides, additives, chemicals and other harmful substances and residues in their food and harmful practices and food processes which lessen the overall quality of the foods (Pham et al., 2019). Consumers associate the safety that comes with food in regards to the substances, chemicals, pesticides and other materials used in the production and manufacturing of food items. They believe the more such substances are added to the food during the entire production process, the more are the chances of food being harmful, unhealthy and unsafe to consume (Wilcock et al., 2004); (Michaelidou & Hassan, 2008).

Organic food production is generally believed to be free of any harmful processes and substances. Organic food is believed to be sustainable and healthy in nature as it is not contaminated with health threatening chemicals or additives (Paul & Rana, 2012). A number of studies have suggested that consumers, especially young consumers are inadequately aware of food safety issues, they lack the awareness of organic foods which hinders them from making a sound decision about which foods are better for consumption and which cause harm, this directly stems from lack of efforts made to educate the masses about the quality of foods, ingredients and processes that they have undergone to make the final product (Green & Knechtges, 2015); (Sanlier, 2009). Another study suggested that proper education and awareness in educational institutions especially schools and colleges will raise food safety concerns amongst consumers especially young consumers, thus the awareness of food safety concerns is a very relevant and important pointer in developing favorable attitudes in young

consumers (Lang et al., 2014). Research has further shown that food safety concern makes consumers develop positive opinions and behavior towards organic foods (Çabuk et al., 2014). Given the existing literature, we hypothesize that:

**H<sub>2</sub>:** *Attitudes towards buying organic food mediates the relationship between organic food purchase behavior and food safety concerns*

### **2.3 Organic Food Purchase Behavior and Health Consciousness**

Health consciousness refers to an individual's awareness and concern regarding health issues and how ready they are to take the necessary steps and actions to ensure the safety of their health (Chen, 2009);(Pham et al., 2019). It also refers to the understanding of consumers towards health changes and nutrient levels in the foods they consumer (Hill & Lynchehaun, 2002). Consumers are becoming more and more concerned regarding health and nutrition factors in the food items they are consuming (Dubé et al., 2014). There is a general consensus and belief among consumers that organic food items are safer and healthier to eat because they are free of any harmful chemicals and full of nutrients due to the processes through which they are manufactured, furthermore many consumers have claimed that organic foods are actually more delicious in taste as opposed to the products manufactured through conventional means thus the growing inclination of consumers towards organic and green food items (Wier et al., 2008). We can therefore ascertain from the previous studies conducted that the factor of healthiness is a very important determinant for consumers' decision to consume organic foods and their growing fondness towards the sustainable culture, young consumers have taken a keen interest as their mindsets towards a healthy lifestyle are gaining importance (Paul & Rana, 2012).

Previous researches have shown that consumers who purchase organic food items are actually more health conscious and take such decisions responsibly, to them health and food safety are the most vital determinants while choosing organic foods and the growing preference towards a sustainable lifestyle ((Van Loo et al., 2010);(Sirieix et al., 2011); (Huber et al., 2011). The major reasons that consumers have mentioned for their decisions to opt for organic foods includes their priority to stay healthy, to be environmentally friendly, their awareness towards healthy organic practices and that for them organic foods taste better compared to non-organic ones consume (Hill & Lynchehaun, 2002). With life threatening diseases and allergy rates in children increasing yearly, consumers are of the opinion that the increase in health issues is being caused by the harmful practices of food manufacturing and

production processes which include additives and harmful preservatives. A study in Taiwan showed that people who took care of the ill actually preferred produce and food items from farms, such behaviors exhibit the individual's willingness towards the intake of organic foods (Tung et al., 2015). Various research has found the health quotient to be the most prioritized one in terms of consumers' attitudes towards choosing organic food items for consumption, the biggest reason is that organic foods are free of any harmful preservatives or ingredients (Zanoli & Naspetti, 2002);(Makatouni, 2002); (Chinnici et al., 2002); (Lockie et al., 2002); (Magnusson et al., 2003); (Ureña et al., 2008).

Studies that have found correlations between attitudes, organic food consumption patterns and environmental concerns further argue that health consciousness and awareness is a major factor for consumers tilting towards organic foods, some are even ready to pay a premium amount for green food items (Williams & Hammitt, 2000);(Lockie et al., 2004). Previous studies suggested that the interest of consumers in health is their main motive towards development of attitudes and purchase intention of organic foods (Gineikiene et al., 2017); (Hsu et al., 2016); (Konuk, 2018). Based on the vast existing literature, we thus hypothesize that:

**H<sub>3</sub>:** *Attitudes towards buying organic food mediates the relationship between organic food purchase behavior and health consciousness*

#### **2.4 Organic Food Purchase Behavior and Organic Food Knowledge**

Various researches have shown that the amount of knowledge and awareness that consumers have regarding organic products and food plays a vital role in their decisions to purchase and consumer organic foods, the more knowledge they have about green food items the more inclination they show towards their purchases. Numerous researches have shown that the lack of organic food knowledge is one of the major obstacles towards lack of development of attitudes towards organic foods and consequently lack of purchase intentions and behaviors towards green consumption (De Magistris & Gracia, 2008). Organic food knowledge is the degree to which consumers have information and know about organic foods and their ability to ascertain the quality and the beneficial traits that organic foods possess.

An experimental research which was conducted in teenagers between the ages of fifteen and sixteen showed that more knowledge of organic foods led to more positive attitudes towards organic food, the more the teenagers were made aware of beneficial impacts of organic foods the more they were convinced that green products contribute towards a better life and health (Stobbelaar et al., 2007). Information available about organic foods in

the market or through mass media such as social media, television and other mediums has a positive impact on general public in particular their subjective knowledge which consequently impacts attitudes towards organic food purchases in consumers (De Magistris & Gracia, 2008).

Research has also proven that lack of knowledge regarding green products and their benefits has a negative influence on attitudes towards organic items, moreover a focus study research showed that buyers and non-buyers show interest and like to be educated and made aware of organic foods and their processes when they intend to make a purchase. Previous studies have supported this by stating that consumers' knowledge and their positive behavior towards organic products increases their purchase intentions (Padel & Foster, 2005). Thus, In the light of the present literature, we hypothesize that:

**H<sub>4</sub>:** *Attitudes towards buying organic food mediates the relationship between organic food purchase behavior and organic food knowledge*

## **2.5 Organic Food Purchase Behavior and Green Marketing Practices**

Marketing that is planned and executed keeping environmental issues and sustainability as the central issue is called green marketing. Such marketing aims to create awareness about the importance of green consumption, to adopt sustainable living practices and advertising regarding green products. Such marketing is also called “socially responsible marketing”, “sustainable marketing”, “environmental marketing (Chamorro et al., 2009); (Mostafa, 2007). Green Marketing generally is defined as the type of marketing that put their efforts into promoting and creating awareness about less destructive and harmful products, services and systems and that aim to reduce the negative environmental influences of existing products, services and production systems (Peattie, 2001). Green Marketing is basically traditional marketing with a twist that it incorporates marketing activities in its production, pricing, placement, promotion and differentiation of good and services which are environment friendly and consumer friendly as well (Ansar, 2013).

Green Marketing is also defined as that type of marketing that makes changes and alterations in the production processes, packaging lines, how the products will be distributed and how advertising will be executed keeping the “green” element of sustainability as the selling point (Diglel & Yazdanifard, 2014) .The ultimate aim and objective of green marketing is to sell products and services which are sustainable in nature and promote environmental conservation and further propel the customer base to work towards

sustainability and protection of the environment. Such marketing actively works towards not only encouraging consumers by making them aware of the importance of environmental conservation but also businesses so they incorporate such practices into their operations which are helpful towards the environment and they make sustainability their goal (Stern & Ander, 2008).

Previous studies have shown that consumers do indeed prefer green and eco-friendly products and prefer companies that use green practices and operations (Bhatia & Jain, 2013). A Nielson global study in 2014 showed that almost 55% of online consumers globally across 60 countries showed their willingness and intention to pay more and an extra premium for goods and services from organizations which followed environmental and social friendly practices (Rayapura, 2014). Another study had results which favored environment friendly products and the motivation of consumers to purchase such products, it is this awareness and motivation that has led companies to adopt green marketing practices (Marccaci, 2013). In light of the existing literature, we derive the following hypothesis:

**H<sub>5</sub>:** *Attitudes towards buying organic food mediates the relationship between organic food purchase behavior and green marketing practices*

## **2.6 Organic Food Purchase Behavior and Price Barriers**

Prior research has shown that monetary barriers are a major reason of hindrance in increasing demands of organic food items in consumers meaning that since organic foods are priced higher than conventional food items, this indirectly affects the demand for green products (Bryła, 2016); (Verhoef, 2005);(Díaz et al., 2012). A research survey carried out in 2015 showed results that 82% of the consumers stated that high price premiums is the reason they aren't motivated to purchase organic food items despite their inclination towards a green lifestyle (Xie et al., 2015). Generally, consumers who purchase organic food such as vegetables, fruits and other grocery items base their ultimate purchase decisions on the quality of the products (Rondán Cataluña et al., 2006) the consciousness towards the pricing of the products plays a critical role in the consumers' final decisions about purchase (Steenhuis et al., 2011). Organic food items are priced higher and are more expensive than their conventional alternatives (Gschwandtner, 2018), the higher prices actually lead to a declined attitude towards organic foods in customers (Żakowska-Biemans, 2011). Moreover, such a price barrier can consequently not only reduce attitudes but also diminish the consumption of organic foods all together (Bruschi et al., 2015). Despite certain studies proving that consumers who feel strongly about environment conservation, eco-friendly



products and services and a sustainable lifestyle, are indeed ready to pay more for such green products (Hamzaoui-Essoussi & Zahaf, 2012);(Soler et al., 2002).

With the findings of previous researches, price is now considered one of the major hindrances that consumers face while they are in their decision-making process regarding organic foods (Nasir & Karakaya, 2014);(Ham et al., 2016);(Bryła, 2016); (Henryks & Pearson, 2013). While keeping in mind that the major reason organic foods are priced premium and higher than their alternatives is due to the expensive production processes and higher production costs and its limited supply, also understanding that the added value of organic foods is intangible in nature, one research suggests that while marketing and promotion, the focus of the product should be stressed more on the benefits and advantages of the products to the consumers and the environment while you are targeting a price conscious consumer base (Iyer et al., 2016). The high prices of organic food items negatively impact the perceived values by the consumers (Van Doorn & Verhoef, 2015). Researches have shown that price is a constant barrier in the consumption of organic foods. Consumers have said that they wouldn't mind paying a higher price given that the price was between 10-30% of that of conventional alternatives (Rodríguez-Bermúdez et al., 2020). One research found a negative and strong correlation between price barriers and the motivation of consumers to purchase different organic products (Tanner & Wölfling Kast, 2003).

Due to the existing literature that suggests monetary barriers to be a very important obstacle between the attitude and purchase of organic food items, we thus hypothesize that:

**H<sub>6</sub>:** *Attitudes towards buying organic food mediates the relationship between organic food purchase behavior and price barriers*

There is an absence of literature regarding how individual consumption factors, green marketing practices and price barriers influence organic food purchase behavior in Pakistani consumers. Since Pakistan lacks such an important research, this study contributes to the existing body of literature.

### **3 Research Design**

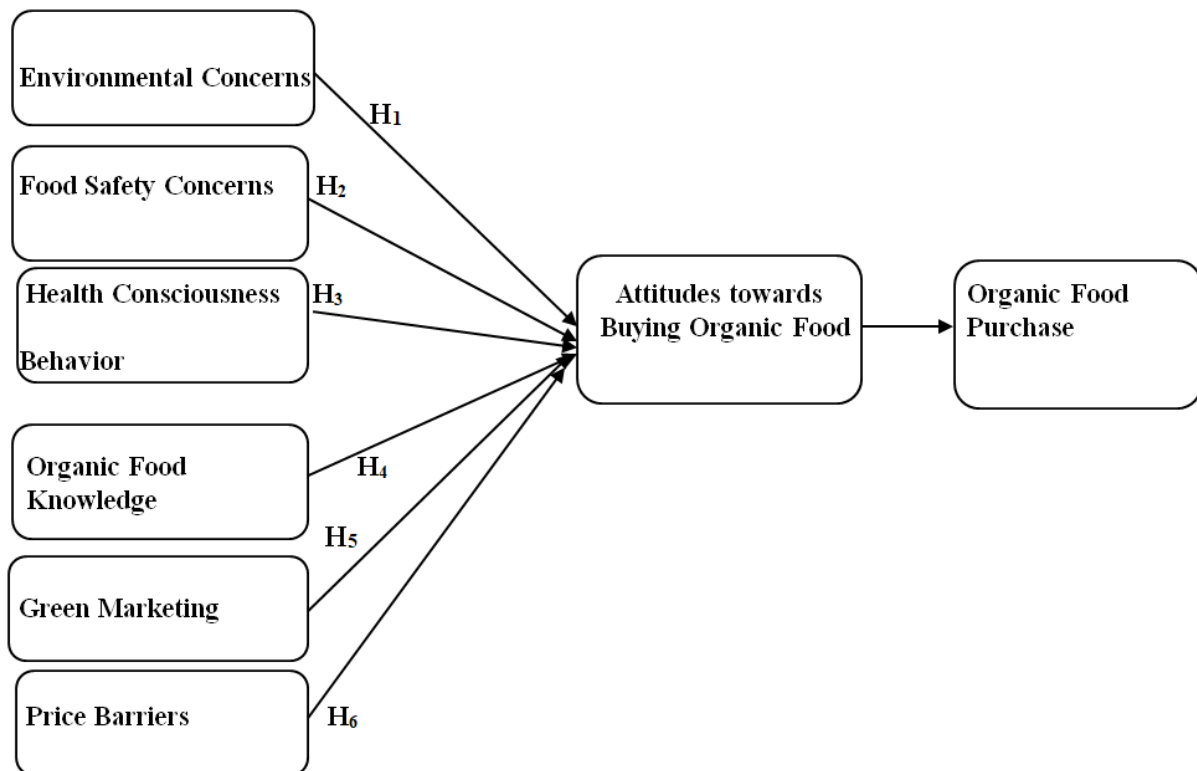
This study is descriptive, inferential and cross sectional in nature. It uses an empirical approach to test the theoretical framework. This research used a deductive approach as it attempts to arrive at specific conclusions which can provide solutions to the problem being studied by using generalized established relationships between the constructs. The proposed sample of this study consisted of 260 respondents as per item scale theory by Nunnally (Nunnally, 1978). The sample was approached through web intercepts using convenience

sampling. Total Number of Questions\*10 = 26\*10 = 260. A survey was used as the statistical tool. The questionnaire was self-administered and measured with the use of Five-point Likert scale where 1 = Strongly Disagree and 5 = Strongly Agree.

### 3.1 Measures

Following are the measures from the survey: To measure Organic Food Purchase Behavior, an item scale consisting of two items was adopted from (Effendi et al., 2015). A sample item included *“I have been a regular buyer of organic foods”*. For *Environmental Concern*, an item scale consisting of four items was adopted from (Yadav & Pathak, 2016a). A sample item included *“The balance of nature is very delicate and can be easily upset”*. *Food Safety Concern* was measured using (Michaelidou & Hassan, 2008). A sample item included *“The quality and safety of food nowadays concerns me”*. *Health Consciousness* was measured using three items adopted from (Tarkiainen & Sundqvist, 2005). A sample item included *“I think often about health issues”*. *Organic Food Knowledge* was measured by four items scale by (Aertsens et al., 2011). A sample item included *“In comparison with an average person I know a lot about organic food.”* *Green Marketing Practices* was measured with a four items by (Mohd Suki, 2018). A sample item included *“This store increases sales of brands of organic food”*. *Price Barrier* was measured using two items adopted from (Tanner & Wölfling Kast, 2003). A sample item included *“The price of organic food is a barrier to purchase it”*. Lastly, *attitudes towards buying organic food*, was measured using four items adopted from (Arvola et al., 2008); (Dean et al., 2012). A sample item included *“Buying organic meat instead of conventional meat is beneficial.*

### 3.2 Theoretical Framework



## 4. Analyses and Interpretation

### 4.1 Descriptive Statistics

Descriptive Statistics show us a summarization of the entire data set. The results of this analysis show us the means and standard deviation values of the variables. The first independent variable Environmental Concern (EC) has a mean value of 3.8260 and a standard deviation of .69489. The second independent variable Food Safety Concern (FSC) has a mean of 3.7654 and a standard deviation .75371. The third independent variable Health Consciousness (HC) has a mean of 3.7346 and a standard deviation of .75542. The fourth independent variable Organic Food Knowledge has a mean of 3.6365 and standard deviation of .72604. The fifth independent variable Green Marketing Practices (GMP) has a mean of 3.7202 and standard deviation of .66622. The sixth independent variable Price Barriers (PB) has a mean of 3.9423 and standard deviation of .68530. The mediating variable Attitudes towards Buying Organic Food (ATBOF) has a mean of 3.8750 and standard deviation of .66616. The dependent variable Organic Food Purchase Behavior (OFPB) has a mean of 3.8250 and standard deviation of .68291.

## 4.2 Correlation Analysis

Correlation is a statistical technique which tells the relationship between two variables, how strongly, moderately or weakly related they are or whether they have no relationship at all. It shows the degree of association between the variables. A statistical measure that indicates the fluctuation tandem of two or more variables (Krumrei-Mancuso & Rouse, 2016). In this research we have performed the Bivariate Correlation Analysis between our variables.

Correlation Coefficients are important for providing preliminary support to the study hypotheses. The range of correlation values lies between -1 to +1. Values closer to +1 show a positive significant correlation whereas the values closer to -1 show a significant but negative correlation between variables. A correlation coefficient value which lies between 0 to 0.3 shows a weak relationship between variables, if the value lies between 0.3 to 0.7, this shows that a moderate relationship exists among the variables and if the values are 0.7 and above, it shows a strong correlation among variables.

According to the values in the Correlation Matrix above, Environmental Concern (EC) has a positive significant and moderate correlation with Food Safety Concerns (FSC) ( $r = .638, p < 0.01$ ). EC also shares a positive significant and moderate correlation with Health Consciousness (HC) ( $r = .432, p < 0.01$ ). EC shares a positive significant but weak correlation with Organic Food Knowledge (OFK) ( $r = .218, p < 0.01$ ). EC has a positive significant and moderate correlation with Attitudes Towards Buying Organic Food (ATBOF) ( $r = .360, p < 0.01$ ). EC has a positive significant weak correlation with Green Marketing Practices (GMP) ( $r = .165, p < 0.01$ ). EC has a positive significant moderate correlation with Price Barriers (PB) ( $r = .300, p < 0.01$ ). EC has a positive significant and strong correlation with Organic Food Purchase Behavior (OFPB) ( $r = .861, p < 0.01$ ).

FSC has a positive significant and moderate correlation with HC ( $r = .615, p < 0.01$ ). FSC has a positive significant but weak correlation with OFK ( $r = .196, p < 0.01$ ). FSC has a positive significant and moderate correlation with ATBOF ( $r = .435, p < 0.01$ ). FSC has a positive significant and weak correlation with GMP ( $r = .167, p < 0.01$ ). FSC shares a positive significant and moderate correlation with both PB and OFPB ( $r = .342, p < 0.01$ ), ( $r = .514, p < 0.01$ ) respectively. HC has a positive significant and moderate correlation with OFK, ATBOF and OFPB ( $r = .487, p < 0.01$ ), ( $r = .475, p < 0.01$ ), ( $r = .371, p < 0.01$ ) respectively. HC has a positive significant but weak correlation with GMP and PB ( $r = .246, p < 0.01$ ), ( $r = .224, p < 0.01$ ) respectively. OFK has a positive significant and moderate correlation with ATBOF ( $r = .362, p < 0.01$ ). OFK has a positive significant and weak

correlation with GMP and OFPB ( $r = .296, p < 0.01$ ), ( $r = .274, p < 0.01$ ). No significant correlation was found between OFK and PB ( $r = .093, ns$ ). ATBOF has a positive significant and moderate correlation with GMP and OFPB ( $r = .386, p < 0.01$ ), ( $r = .389, p < 0.01$ ) respectively. ATBOF has a positive significant but weak correlation with PB ( $r = .270, p < 0.01$ ). GMP has a positive significant and moderate correlation with PB ( $r = .326, p < 0.01$ ). GMP has a positive significant and weak correlation with OFPB ( $r = .196, p < 0.01$ ). PB has a positive significant but weak correlation with OFPB ( $r = .263, p < 0.01$ ).

#### **4.3 Mediation Analysis**

To test a mediation analysis for the hypotheses with bootstrap method (Hayes, 2018) model 4 was performed.

Hypotheses Testing

##### **Attitudes towards Buying Organic Food mediates between Organic Food Purchase Behavior and Environmental Concerns**

The results of ATBOF on OFPB and EC show that ATBOF has a positive and significant mediation between OFPB and EC (Effect = 0.032, Boot SE = 0.012, Boot LLCI = 0.010, Boot ULCI= 0.058) thus supporting H<sub>1</sub>.

##### **Attitudes towards Buying Organic Food mediates between Organic Food Purchase Behavior and Food Safety Concerns**

The results of ATBOF on OFPB and FSC show that ATBOF has a significant mediation between OFPB and FSC (Effect = 0.080, Boot SE = 0.024, Boot LLCI = 0.036, Boot ULCI= 0.137), thus supporting H<sub>2</sub>.

##### **Attitudes towards Buying Organic Food mediates between Organic Food Purchase Behavior and Health Consciousness**

The results of ATBOF on OFPB and HC show that ATBOF has a significant mediation between OFPB and HC (Effect = 0.117, Boot SE = 0.028, Boot LLCI = 0.061, Boot ULCI= 0.177), thus supporting H<sub>3</sub>.

##### **Attitudes towards Buying Organic Food mediates between Organic Food Purchase Behavior and Organic Food Knowledge**

The results of ATBOF on OFPB and OFK show that ATBOF has a significant mediation between OFPB and OFK (Effect = 0.113, Boot SE = 0.027, Boot LLCI = 0.062, Boot ULCI= 0.171), thus supporting H<sub>4</sub>.

### **Attitudes towards Buying Organic Food mediates between Organic Food Purchase Behavior and Green Marketing Practices**

The results of ATBOF on OFPB and GMP show that ATBOF has a significant mediation between OFPB and GMP (Effect = 0.145, Boot SE = 0.031, Boot LLCI = 0.088, Boot ULCI= 0.207), thus supporting H<sub>5</sub>.

### **Attitudes towards Buying Organic Food mediates between Organic Food Purchase Behavior and Price Barriers**

The results of ATBOF on OFPB and PB show that ATBOF has a significant positive mediation between OFPB and PB (Effect = 0.092, Boot SE = 0.028, Boot LLCI = 0.041, Boot ULCI= 0.153), thus supporting H<sub>6</sub>.

## **5 Discussions and Implications**

The study findings have shown that Attitudes towards Buying Organic Food have a positive significant but weak mediation between organic food purchase behavior and environmental concerns (Effect = 0.032, Boot SE = 0.012, Boot LLCI = 0.010, Boot ULCI= 0.058). The direct effect of Environmental Concern and Organic Food Purchase Behavior is  $\beta=.814$  and with mediation  $\beta=.846$ , thus supporting our first hypothesis. These findings suggest attitudes towards the buying of organic foods does mediate between a consumers' environmental concern and their ultimate organic food purchase behavior, however it is not that strong which could be due to lack of awareness on environment issues. Consumers show awareness and an interest towards environmental concern due to which they develop attitudes towards organic purchases. Previous similar researches have provided the same evidence that a consumer's environmental awareness and concern helps in strengthening their attitudes towards organic foods (Smith & Paladino, 2010); (Chen, 2009).

A similar research conducted showed that Food Safety Concern plays a very important role in developing positive attitudes in consumers regarding organic foods and their importance, the most consumers are aware of health risks that come with conventional foods, the more motivated they are to opt for organic alternatives (Michaelidou & Hassan, 2008). The findings in this study show that (Effect = 0.080, Boot SE = 0.024, Boot LLCI = 0.036, Boot ULCI= 0.137), attitudes towards buying organic foods have a positive significant but weak mediation between organic food purchase behavior and food safety concerns,  $\beta=.465$ , thus supporting our second hypothesis. Food Safety Concerns in consumers from Lahore does indeed a play a role in developing attitudes towards buying organic foods, the consumers are aware of the health scares in conventional foods and thus are inclined towards

purchasing organic foods owing to its health benefits and protection from diseases that preservatives, additives can carry in conventional foods. Previous researches regarding the effect of health consciousness on consumer attitudes towards organic foods has shown a strong relationship between the two, the more consumers exhibit concerns about their health, the more conscious they are about the foods they consume, the more inclined they become towards organic foods owing to its benefits to the health thus the level of health consciousness in consumers directly effects their attitudes towards organic foods (Yadav & Pathak, 2016b); (Lee, 2016). The findings of this research show that (Effect = 0.117, Boot SE = 0.028, Boot LLCI = 0.061, Boot ULCI= 0.177), attitudes towards buying organic food positively and significantly mediates the relationship between organic food purchase behavior and health consciousness,  $\beta=.335$  thus supporting the third hypothesis. Consumers of Lahore exhibited a conscious attitude towards health concerns and how much they take health into account while deciding their food purchases which leads to organic food purchase behavior.

Research studies conducted on organic food knowledge have shown a positive impact on attitudes towards organic products which means the more knowledge consumers have about organic foods and products, the stronger their attitudes towards organic purchases and organic alternatives for consumption (Aertsens et al., 2011); (De Magistris & Gracia, 2008). The findings in this study show (Effect = 0.113, Boot SE = 0.027, Boot LLCI = 0.062, Boot ULCI= 0.171) that attitudes towards buying organic food have a positive significant mediation between organic food purchase behavior and organic food knowledge,  $\beta=.257$ , thus supporting the fourth hypothesis. The weak relationships due to a low level of knowledge or access to knowledge of organic foods in consumers from Lahore. Studies conducted on green marketing have shown positive results in developing attitudes in consumers and increasing their motivation towards organic food purchases. This finding has been deduced from both developed and developing economies. Green marketing practices successfully increase product image in consumers (Mohd Suki, 2018). The findings of this study (Effect = 0.145, Boot SE = 0.031, Boot LLCI = 0.088, Boot ULCI= 0.207) show a positive significant but weak mediation between organic food purchase behavior and green marketing practices,  $\beta= 0.2021$ , thus supporting our fifth hypothesis. The results that even though green marketing practices in Lahore consumers are encouraging their attitudes towards buying organic foods, it is not very effective which means that the organic food brands need to develop more effective green marketing mix to promote organic purchase behavior. Literature has shown that price barriers have a negative relationship with organic

purchase behavior. One research found a negative and strong correlation between price barriers and the attitudes of consumers to purchase different organic products (Tanner & Wölfling Kast, 2003). The findings of this research have shown (Effect = 0.092, Boot SE = 0.028, Boot LLCI = 0.041, Boot ULCI = 0.153) which shows a positive significant mediation between price barriers and organic food purchase behavior which leads to rejection of hypothesis six. Previous research has shown that price barriers lead to a reduced attitude towards organic foods which consequently hinders purchase behavior. However, in this study, price barriers positively affect organic purchase behavior and the mediation is significant as well hence the consumers' of Lahore, albeit affected weakly  $\beta = 0.262$ , do not exhibit a negative attitude towards organic food purchase behavior.

### **Limitations**

The study was conducted on a sample from one city; Lahore, Punjab thus the generalizability of the research is limited. Studies should be conducted on other cities in Pakistan to have a greater understanding on organic food purchase behaviors. The study was conducted in one-time, cross sectional time horizon. A longitudinal study can provide for more findings regarding changes in consumers over longer periods of time especially in terms of their attitudes, environmental concerns, purchase behaviors.

### **Managerial Implications and Future Directions**

The research regarding organic purchase behaviors is limited in Pakistan. This study with respect to individual consumption factors, green marketing practices and price barriers is the first to be conducted in the developing economy of Pakistan. Thus, it leaves several very important implications for business owners, marketers, policy makers and organizations associated with sustainability. Pakistan has currently one of the worse health indexes in the world with it being ranked 122<sup>nd</sup> out of 190 countries, by World Health Organization. One of the major reasons for deteriorating health standards is lack of healthy food available. This, firstly calls on the government especially the Federal Health Ministry to make important and necessary intervention strategies, sanctioning funds for organic food production and plans of actions for the production and accessibility of organic foods to the general public. The demand for organic foods should be encouraged through food items being available at affordable costs.

Organic food producers should maximize their efficiencies to produce more food, which will result in lesser prices, this also includes distributors considering a discounted price of organic foods. Organic food brands and stores need to develop effective green marketing



strategies both on electronic media such as social media, television and in store marketing as well with the use of personalized marketing using staff, fliers, brochures, sample testing, signage's and effective product placement. This research has shown that attitude has a positive significant impact on consumer purchase behaviors of organic foods thus this needs to be capitalized on for the masses through the development of an effective green marketing mix. Future studies can conduct researches on other organic products such as cosmetics, skin care, to have more findings regarding consumer attitudes.

Furthermore, education programs and community campaigns should be developed by organizations for awareness about the harmful effects of conventional foods and practices, the importance of organic food and the long-term benefits for the citizens and the environment and the urgent need to adopt sustainability into our daily lives. More entrepreneurial initiatives like Haryali Market should be introduced to help bring more awareness of current organic food sellers and to promote an organic consumption culture.

## References

- Aertsens, J., Mondelaers, K., Verbeke, W., Buysse, J., & Van Huylenbroeck, G. (2011). The influence of subjective and objective knowledge on attitude, motivations and consumption of organic food. *British Food Journal*.
- Al-Swidi, A., Huque, S. M. R., Hafeez, M. H., & Shariff, M. N. M. (2014). The role of subjective norms in theory of planned behavior in the context of organic food consumption. *British Food Journal*.
- Albayrak, T., Aksoy, Ş., & Caber, M. (2013). The effect of environmental concern and scepticism on green purchase behaviour. *Marketing Intelligence & Planning*.
- Ansar, N. (2013). Impact of green marketing on consumer purchase intention. *Mediterranean Journal of Social Sciences*, 4(11), 650-650.
- 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(2-3), 443-454.
- Bhatia, M., & Jain, A. (2013). Green marketing: A study of consumer perception and preferences in India. *Electronic Green Journal*, 1(36).
- Biswas, A., & Roy, M. (2015). Green products: an exploratory study on the consumer behaviour in emerging economies of the East. *Journal of cleaner production*, 87, 463-468.
- Bruschi, V., Teuber, R., & Dolgoplova, I. (2015). Acceptance and willingness to pay for health-enhancing bakery products—Empirical evidence for young urban Russian consumers. *Food Quality and Preference*, 46, 79-91.
- Bryła, P. (2016). Organic food consumption in Poland: Motives and barriers. *Appetite*, 105, 737-746.
- Çabuk, S., Tanrikulu, C., & Gelibolu, L. (2014). Understanding organic food consumption: attitude as a mediator. *International Journal of Consumer Studies*, 38(4), 337-345.
- Chamorro, A., Rubio, S., & Miranda, F. J. (2009). Characteristics of research on green marketing. *Business Strategy and the Environment*, 18(4), 223-239.
- 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*.
- Chinnici, G., D'Amico, M., & Pecorino, B. (2002). A multivariate statistical analysis on the consumers of organic products. *British Food Journal*.
- De Magistris, T., & Gracia, A. (2008). The decision to buy organic food products in Southern Italy. *British Food Journal*.
- Dean, M., Raats, M. M., & Shepherd, R. (2012). The role of self-identity, past behavior, and their interaction in predicting intention to purchase fresh and processed organic food 1. *Journal of applied social psychology*, 42(3), 669-688.
- Díaz, F. J. M., Pleite, F. M. C., Paz, J. M. M., & García, P. G. (2012). Consumer knowledge, consumption, and willingness to pay for organic tomatoes. *British Food Journal*.
- Diglel, A., & Yazdanifard, R. (2014). Green Marketing: Itâ€™s Influence on Buying Behavior and Attitudes of the Purchasers towards Eco-Friendly Products. *Global Journal of Management and Business Research*.
- Dubé, L., Labban, A., Moubarac, J. C., Heslop, G., Ma, Y., & Paquet, C. (2014). A nutrition/health mindset on commercial Big Data and drivers of food demand in modern and traditional systems. *Annals of the New York Academy of Sciences*, 1331(1), 278-295.
- Dunlap, R. E., & Jones, R. E. (2002). Environmental concern: Conceptual and measurement issues. *Handbook of environmental sociology*, 3(6), 482-524.
- Effendi, I., Ginting, P., Lubis, A. N., & Fachrudin, K. A. (2015). Analysis of consumer behavior of organic food in North Sumatra Province, Indonesia. *Journal of Business and Management*, 4(1), 44-58.
- Elferink, E., Nonhebel, S., & Moll, H. (2008). Feeding livestock food residue and the consequences for the environmental impact of meat. *Journal of cleaner production*, 16(12), 1227-1233.
- Gineikiene, J., Kiudyte, J., & Degutis, M. (2017). Functional, organic or conventional? Food choices of health conscious and skeptical consumers. *Baltic Journal of Management*.

- Green, E. J., & Knechtges, P. L. (2015). Food safety knowledge and practices of young adults. *Journal of Environmental Health*, 77(10), 18-25.
- Gschwandtner, A. (2018). The organic food premium: a local assessment in the UK. *International Journal of the Economics of Business*, 25(2), 313-338.
- Ham, M., Pap, A., & Bilandzic, K. (2016). Perceived barriers for buying organic food products. *Economic and Social Development: Book of Proceedings*, 162.
- Hamzaoui-Essoussi, L., & Zahaf, M. (2012). Canadian organic food consumers' profile and their willingness to pay premium prices. *Journal of international food & agribusiness marketing*, 24(1), 1-21.
- Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication monographs*, 85(1), 4-40.
- Henryks, J., & Pearson, D. (2013). Attitude behavior gaps: Investigating switching amongst organic consumers. International Food Marketing Research Symposium 2013,
- Hill, H., & Lynchehaun, F. (2002). Organic milk: attitudes and consumption patterns. *British Food Journal*.
- Hsu, S.-Y., Chang, C.-C., & Lin, T. T. (2016). An analysis of purchase intentions toward organic food on health consciousness and food safety with/under structural equation modeling. *British Food Journal*.
- Huber, M., Rembiakowska, E., Średnicka, D., Bügel, S., & Van De Vijver, L. (2011). Organic food and impact on human health: Assessing the status quo and prospects of research. *NJAS: Wageningen Journal of Life Sciences*, 58(3-4), 103-109.
- Hughner, R. S., McDonagh, P., Prothero, A., Shultz, C. J., & Stanton, J. (2007). Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour: An International Research Review*, 6(2-3), 94-110.
- Iyer, P., Davari, A., & Paswan, A. (2016). Green products: Altruism, economics, price fairness and purchase intention. *Social Business*, 6(1), 39-64.
- Kang, M.-H., Lee, J.-S., Kim, H.-Y., Kwon, S., Choi, Y.-S., Chung, H. R., Kwak, T.-K., & Cho, Y.-H. (2012). Selecting items of a food behavior checklist for the development of Nutrition Quotient (NQ) for children. *Korean Journal of Nutrition*, 45(4), 372-389.
- Khan, S. N., & Mohsin, M. (2017). The power of emotional value: Exploring the effects of values on green product consumer choice behavior. *Journal of cleaner production*, 150, 65-74.
- Konuk, F. A. (2018). Antecedents of pregnant women's purchase intentions and willingness to pay a premium for organic food. *British Food Journal*.
- Kriwy, 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.
- Krumrei-Mancuso, E. J., & Rouse, S. V. (2016). The development and validation of the comprehensive intellectual humility scale. *Journal of Personality Assessment*, 98(2), 209-221.
- Lang, M., Stanton, J., & Qu, Y. (2014). Consumers' evolving definition and expectations for local foods. *British Food Journal*.
- Lee, H.-J. (2016). Individual and situational determinants of US consumers' buying behavior of organic foods. *Journal of international food & agribusiness marketing*, 28(2), 117-131.
- Lee, T. H., & Jan, F.-H. (2015). The effects of recreation experience, environmental attitude, and biospheric value on the environmentally responsible behavior of nature-based tourists. *Environmental management*, 56(1), 193-208.
- Lockie, S., Lyons, K., Lawrence, G., & Grice, J. (2004). Choosing organics: a path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite*, 43(2), 135-146.
- Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating 'green': motivations behind organic food consumption in Australia. *Sociologia ruralis*, 42(1), 23-40.
- 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.
- Makatouni, A. (2002). What motivates consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal*.

- Marccaci, S. (2013). The Big Green Opportunity for America's Economy. In.
- Massey, M., O'Cass, A., & Otahal, P. (2018). A meta-analytic study of the factors driving the purchase of organic food. *Appetite*, 125, 418-427.
- 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.
- Mohd Suki, N. (2018). Determinants of consumers' purchase intentions of organic vegetables: Some insights from Malaysia. *Journal of food products marketing*, 24(4), 392-412.
- Mostafa, M. M. (2007). A hierarchical analysis of the green consciousness of the Egyptian consumer. *Psychology & Marketing*, 24(5), 445-473.
- Nasir, V. A., & Karakaya, F. (2014). Underlying motivations of organic food purchase intentions. *Agribusiness*, 30(3), 290-308.
- Nguyen, H. V., Nguyen, N., Nguyen, B. K., Lobo, A., & Vu, P. A. (2019). Organic food purchases in an emerging market: The influence of consumers' personal factors and green marketing practices of food stores. *International journal of environmental research and public health*, 16(6), 1037.
- Nguyen, T. N., Lobo, A., Nguyen, H. L., Phan, T. T. H., & Cao, T. K. (2016). Determinants influencing conservation behaviour: Perceptions of Vietnamese consumers. *Journal of Consumer Behaviour*, 15(6), 560-570.
- Nunnally, J. (1978). *Psychometric Theory* 2nd edition (New York: McGraw).
- 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*.
- Paul, J., & Rana, J. (2012). Consumer behavior and purchase intention for organic food. *Journal of consumer Marketing*.
- Peattie, K. (2001). Towards sustainability: the third age of green marketing. *The marketing review*, 2(2), 129-146.
- Pham, T. H., Nguyen, T. N., Phan, T. T. H., & Nguyen, N. T. (2019). Evaluating the purchase behaviour of organic food by young consumers in an emerging market economy. *Journal of Strategic Marketing*, 27(6), 540-556.
- Rana, J., & Paul, J. (2017). Consumer behavior and purchase intention for organic food: A review and research agenda. *Journal of Retailing and Consumer Services*, 38, 157-165.
- Rayapura, A. (2014). New Nielsen study says consumers are ready to pay more for social responsibility. *Sustainable Brands*.
- Raza, S. A., Shah, N., & Nisar, W. (2019). Consumer buying behavior of organic food with respect to health and safety concerns among adolescents.
- Rehman, A., Chandio, A. A., Hussain, I., & Jingdong, L. (2019). Fertilizer consumption, water availability and credit distribution: Major factors affecting agricultural productivity in Pakistan. *Journal of the Saudi Society of Agricultural Sciences*, 18(3), 269-274.
- Rodríguez-Bermúdez, R., Miranda, M., Orjales, I., Ginzo-Villamayor, M. J., Al-Soufi, W., & López-Alonso, M. (2020). Consumers' perception of and attitudes towards organic food in Galicia (Northern Spain). *International Journal of Consumer Studies*, 44(3), 206-219.
- Rondán Cataluña, F. J., García, A. N., & Phau, I. (2006). The influence of price and brand loyalty on store brands versus national brands. *Int. Rev. of Retail, Distribution and Consumer Research*, 16(4), 433-452.
- Sanlier, N. (2009). The knowledge and practice of food safety by young and adult consumers. *Food control*, 20(6), 538-542.
- Sirieux, L., Kledal, P. R., & Sulitang, T. (2011). Organic food consumers' trade-offs between local or imported, conventional or organic products: a qualitative study in Shanghai. *International Journal of Consumer Studies*, 35(6), 670-678.
- Smith, S., & Paladino, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal (AMJ)*, 18(2), 93-104.
- Soler, F., Gil, J. M., & Sanchez, M. (2002). Consumers' acceptability of organic food in Spain: results from an experimental auction market. *British Food Journal*.

- Steenhuis, I. H., Waterlander, W. E., & De Mul, A. (2011). Consumer food choices: the role of price and pricing strategies. *Public health nutrition*, 14(12), 2220-2226.
- Stern, N. Z., & Ander, W. N. (2008). *Greentailing and other revolutions in retail: Hot ideas that are grabbing customers' attention and raising profits*. John Wiley & Sons.
- Stobbelaar, D. J., Casimir, G., Borghuis, J., Marks, I., Meijer, L., & Zebeda, S. (2007). Adolescents' attitudes towards organic food: a survey of 15-to 16-year old school children. *International Journal of Consumer Studies*, 31(4), 349-356.
- Tanner, C., & Wölfling Kast, S. (2003). Promoting sustainable consumption: Determinants of green purchases by Swiss consumers. *Psychology & Marketing*, 20(10), 883-902.
- Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British Food Journal*.
- Tsakiridou, E., Boutsouki, C., Zotos, Y., & Mattas, K. (2008). Attitudes and behaviour towards organic products: an exploratory study. *International Journal of Retail & Distribution Management*.
- Tung, S.-J., Tsay, J. C., & Lin, M.-C. (2015). Life course, diet-related identity and consumer choice of organic food in Taiwan. *British Food Journal*.
- 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.
- Van Doorn, J., & Verhoef, P. C. (2015). Drivers of and barriers to organic purchase behavior. *Journal of Retailing*, 91(3), 436-450.
- Van Loo, E., Caputo, V., Nayga, J., Rodolfo M, Meullenet, J. F., Crandall, P. G., & Ricke, S. C. (2010). Effect of organic poultry purchase frequency on consumer attitudes toward organic poultry meat. *Journal of Food Science*, 75(7), S384-S397.
- Verhoef, P. C. (2005). Explaining purchases of organic meat by Dutch consumers. *European Review of Agricultural Economics*, 32(2), 245-267.
- Wang, J., Pham, T. L., & Dang, V. T. (2020). Environmental consciousness and organic food purchase intention: a moderated mediation model of perceived food quality and price sensitivity. *International journal of environmental research and public health*, 17(3), 850.
- Wang, J., Shen, M., & Gao, Z. (2018). Research on the irrational behavior of consumers' safe consumption and its influencing factors. *International journal of environmental research and public health*, 15(12), 2764.
- Wier, M., Jensen, K. O. D., Andersen, L. M., & Millock, K. (2008). The character of demand in mature organic food markets: Great Britain and Denmark compared. *Food Policy*, 33(5), 406-421.
- Wilcock, A., Pun, M., Khanona, J., & Aung, M. (2004). Consumer attitudes, knowledge and behaviour: a review of food safety issues. *Trends in food science & technology*, 15(2), 56-66.
- Williams, P. R., & Hammitt, J. K. (2000). A comparison of organic and conventional fresh produce buyers in the Boston area. *Risk analysis*, 20(5), 735-746.
- 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*.
- Yadav, R., & Pathak, G. S. (2016a). Intention to purchase organic food among young consumers: Evidences from a developing nation. *Appetite*, 96, 122-128.
- Yadav, R., & Pathak, G. S. (2016b). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of cleaner production*, 135, 732-739.
- Żakowska-Biemans, S. (2011). Barriers to buy organic food in the context of organic food market development. *Journal of Research and Applications in Agricultural Engineering*, 56(4), 216-220.
- Zanoli, R., & Naspetti, S. (2002). Consumer motivations in the purchase of organic food: A means-end approach. *British Food Journal*.