

**Negative emotions, positive actions: Food safety and consumer intentions to purchase ethical food in China**

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### **Abstract**

Although ensuring food safety is still an urgent social issue in China, ethical consumption practices are relatively new, and ethical food is not widely consumed. Chinese consumers often face confusing information about a particular food product's safety and are concerned about the situation. Drawing upon stress coping theory, this study examines whether consumer confusion and negative emotions drive intentions to adopt ethical food. Data collected from a sample of 505 consumers were analyzed using structural equation modeling. The results show that consumer confusion has a significant impact on negative emotions, which in turn influence intentions to purchase ethical food products. This research advances the food preference literature by providing a new perspective on ethical consumption based on coping strategies. The findings are important for policymakers and business leaders seeking to develop and better promote safer and more ethical food programs in China.

**Keywords:** Food safety; consumer confusion; negative emotion; stress coping; ethical consumption; China

## **1. Introduction**

Food safety is an important issue that consumers are concerned about (Baiardi, Puglisi, & Scabrosetti, 2016; Liu & Grunert, 2020; Walsh, Duncan, Bell, O’Keefe, & Gallagher, 2017). Unfortunately, food safety scandals are recurring worldwide (Barbarossa, De Pelsmacker, Moons, & Marcati, 2016). In China, the food sector has experienced numerous food crisis and food security scandals in recent years, which have “undermined consumers’ confidence in food safety” (Yin et al. 2019, p. 54). According to Mintel’s 2018 Chinese Consumer Report, worries over food safety (36%) and pollution (32%) remain top concerns for Chinese consumers (Mintel Press Team, 2018). It is therefore not surprising that the majority of Chinese consumers express a high degree of ‘negative emotions’ such as anger and anxiety regarding food safety (Augustin-Jean & Poulain, 2018). The Chinese government is continuing to reform and restructure food safety policies in an effort to address food safety concerns. A statement released by the State Council of the People’s Republic of China suggests that the Chinese government has implemented “the strictest standards” to improve food safety (GlobalTimes, 2017). However, ordinary Chinese consumers appear to be confused about what food is safe in the market and how to make informed purchasing decisions (Omari & Frempong, 2016). Making safe food choices can be difficult for consumers as many different factors must be taken into account, which can result in consumers being confused (Tobler, Visschers, & Siegrist, 2011). This is especially the case when food safety information at the point of purchase is not always transparent (Peng, Li, Xia, Qi, & Li, 2015).

When consumers are confused, their existing negative emotions could be aggravated (Heitmann, Lehmann, & Herrmann, 2007). Emotions are often defined as positive or negative affective responses to a given situation, which is essential for action (Verhoef, 2005). It is believed that emotions are the main driving forces for making the most important decisions in

life (Lerner, Li, Valdesolo, & Kassam, 2015). Previous studies have examined how emotional response to food issues influence consumer attitudes, levels of consumer acceptance, choice, and purchase intentions (Jiang, King, & Prinyawiwatkul, 2014; Walsh et al., 2017; Wardy, Sae-Eaw, Sriwattana, No, & Prinyawiwatkul, 2015). There are also studies examining consumer confusion with food labeling and food systems (e.g. Marano-Marcolini & Torres-Ruiz, 2017; Mann, 2018). However, very little research has investigated ‘consumer confusion’ relating to food safety and the potential role confusion may play in driving ethical food consumption. Moreover, there have been calls for further research to explore the link between emotions and food purchasing decisions (Lerner et al., 2015).

The objective of this study is, therefore, to investigate whether negative emotions could lead to ethical food purchase intention in China, with consideration of other potential driving factors such as confusion and ethical obligations. According to stress coping theory (Lazarus & Folkman, 1984), consumers may respond to a threat by identifying the cause of the threat, examining ways to deal with the cause of the threat, seeking solutions to improve the situation, and changing behavior to achieve a desirable outcome. As the cause of food safety scandals has been attributed to the unethical behavior of the food producers, we speculate that one potential solution to this problem is to look for ethically produced or processed food products. We test our hypotheses using data collected from a survey of 505 consumers in China.

The contributions of this study are threefold. First, we develop and test a conceptual model incorporating four hypotheses, thereby expanding the food preference literature by exploring consumer negative emotions and confusion in the important context of food safety in China. Second, we draw upon stress coping theory to explain the link which appears to exist between Chinese consumers’ negative emotions regarding food safety and their intentions to purchase

ethical food. Third, we found that negative emotions heighten personal ethical obligations, which act as an essential driver of ethical consumption.

## **2. Conceptual background and hypotheses**

### *2.1. Ethical consumption*

Ethical consumption, as part of a broad consumer trend (Kushwaha et al. 2019), has flourished in the western countries in the last decade (Dowd & Burke, 2013). Shaw and Clarke (1998, p. 163) refer to ethical consumption as “the degree to which consumers prioritize their own ethical concerns when making product choices”. Consumers’ ethical concerns include environmental protectionism, animal welfare, human rights, country of origin, fair trade, health, child labor practices, anti-globalization, food safety and other factors (Carrington et al., 2010). Similarly, Crane and Matten (2004) believe ethical consumption is motivated by consumer’s moral belief system. Other scholars focus on the ethical aspect of the production and distribution of a product (e.g. Uusitalo and Oksanen, 2004). Kushwah, Dhir, and Sagar (2019) see ethical consumption as the buying of products that are ethically sourced, produced and distributed, to support the producers’ ethical practices. Therefore, the definition of ethical consumption adopted in this study refers to the buying of ethically produced products that address consumer health, safety and ethical concerns.

### *2.2. Confusion and negative emotions with regards to food safety*

Consumer confusion is defined as an uncomfortable psychological state when a consumer is exposed to too much information that is often ambiguous, incomplete, or misleading in nature (Edward & Sahadev, 2012). Consumer confusion involves failing to properly interpret all aspects of a product while processing information, as the result of a combination of factors, such as a high degree of similarity, unclear information, ambiguous information, insufficient or frequently changing information on and/or choices of products,

services and stores (Wobker et al., 2015). The need to process too much information can also result in confusion (Mitchell, Walsh, & Yami, 2005). Consumer confusion may also be caused by adulteration, fraud and misleading advertising (Peng et al., 2015); arousing or inappropriate store environments (Garaus & Wagner, 2016); similar brands (Howard, Kerin, & Gengler, 2000); a failure to understand/trust government-mandated messages (Green & Armstrong, 2012); multi-channel assortment (Bertrandie & Zielke, 2017), and poor food classification systems (Marano-Marcolini & Torres-Ruiz, 2017). Despite the stringent regulations, many Chinese companies do not disclose safety information on their food products (Li, Phau, Lu, & Teah, 2018). In this study, consumer confusion relates to food safety information in general, rather than just food labels.

Confusion can result in negative outcomes, overwhelming consumers and causing decision paralysis, irrational decision making, brand disloyalty, dissatisfaction, decision postponement, or avoidance behavior (Garaus & Wagner, 2016; Walsh & Mitchell, 2010; Walsh et al. 2007). Furthermore, confusion reduces scientific certainty, has a negative influence on perceived quality, and can harm firm credibility (Fitzgerald, Russo Donovan, Kees, & Kozup, 2019). According to the cognitive appraisal theory (Bagozzi, Gopinath, & Nyer, 1999), negative emotions are driven by an appraised uncertainty situation (Lerner & Keltner, 2000). Since consumer confusion is linked to uncertainty (Walsh & Mitchell, 2010), it may lead to negative emotions (Heitmann et al. 2007). Moon, Costello, and Koo (2017) show that confusion associated with eco-labels drives negative emotions. Therefore, we hypothesize that:

**H1:** Consumer confusion leads to an increase in negative emotions regarding food safety.

Emotions can have a significant impact on consumers' attitudes and behavior, thereby influencing purchasing decisions (Verhoef, 2005). Scholars in psychology have suggested that emotions can affect decision-making by activating coping strategies (So et al., 2015). Specifically, consumers who experience negative emotions attempt to cope with these

emotions by seeking solutions or engaging in defensive actions (So et al., 2015). A desirable end-state (e.g. good health) motivates an individual to adopt approach behavior to increase gain rather than avoidance behavior to reduce harm (Carver & Connor-Smith, 2010).

According to Lazarus & Folkman (1984), there are two major approaches to coping with stress: problem-focused and emotion-focused. Problem-focused coping focuses on positive outcomes such as opportunities, rewards and success (Skinner & Brewer, 2002). Problem-focused coping involves taking actions to address the cause of the problem, whereas emotion-based coping strives to regulate one's emotion. Consumers who are high in self-efficacy tend to use problem-focused coping, whereas those low in self-efficacy tend to rely on emotion-based coping. Awareness of the benefits of an action (e.g. good health of having ethical food) that could be used to successfully tackle the cause of a threat (e.g. unsafe food) fosters self-efficacy, which lead to problem-focused coping, i.e. taking positive action to tackle the problem (Duhachek, Agrawal, & Han, 2012).

Empirical evidence has shown that there is a positive relationship between negative emotions and pro-environmental behavior. The results of research conducted by Grob (1995) and Lee and Holden (1999) suggest that as emotions regarding environmental problems gain in intensity, consumers are more likely to engage in behavior that protects the environment. Xu and Wu (2010) found that when consumers have negative emotions and are dissatisfied with food safety conditions, they are more likely to buy and pay a higher price for certified traceable food. Verhoef (2005) highlighted that negative emotions regarding fear, guilt and empathy influence organic meat buying behavior and that fear could have an impact on consumers' purchasing decisions. Based on the above discussion, we propose:

**H2:** Negative emotions regarding food safety increase consumers' ethical purchase intentions towards food products.

Internalized personal ethical norms and obligations play a crucial role in shaping ethical buying behavior which is also influenced by the social, non-traditional ingredients of products (Godin, Conner, & Sheeran, 2005). Ethical norms influence ethical obligations, which are based on the interaction of cognitive, emotional, and social factors (Bierhoff, 2002). However, in the context of ethical consumerism, research on the activation of ethical norms mainly focusses on cognitive factors such as awareness and concern (e.g., Bamberg, Hunecke, & Blöbaum, 2007; Bradu, Orquin, & Thøgersen, 2014).

Negative emotions involve reactions to the negative consequences of the purchase (e.g. unsafe food, environmental damage or violations of labor and human rights), which is morally intolerable (Grob, 1995). When bad things happen that threaten consumer welfare, negative emotions arise as a consequence of consumers' appraisals, which can provoke coping responses (Lazarus, 1991). Such coping responses show the willingness to respond to the violation of moral standards (Laros & Steenkamp, 2005). For example, Grappi, Romani, & Bagozzi (2013) find that negative consumer emotions (contempt, anger and disgust) caused by corporate irresponsibility increase consumers' negative WOM and protest actions. As consumers with strong negative emotions may become energized, which could strengthen their personal ethical obligations, we propose:

**H3:** Negative emotions to food safety, result in increases in consumers' personal ethical obligations.

Schwartz (1977) argues that consumers' personal norms are not considered as intentions, but rather are based on a belief or moral obligation that has a direct impact on behavior. Personal ethical obligations have been shown to drive consumers' intentions to buy a range of products that can be summarized in the general term – “ethical products”. In many cases, it has been found that adding measures of moral obligation can improve the explanatory power of models of buying intentions (Nielsen & McGregor, 2013). Thus, we propose:



**H4.** Personal ethical obligations increase consumers' intentions to purchase ethical food products (ethical purchase intentions).

H5: Personal ethical obligations have mediation impacts on the relationships between negative emotions to food safety and consumers' intentions to purchase ethical food products (ethical purchase intentions).

The stimulus-organism-response model of environmental psychology (Bagozzi, Gopinath, & Nyer 1999) argues that emotional responses mediate the effects of stimuli on behavioral responses. Empirical evidence provided by Moon et al. (2017) confirms that negative emotions regarding eco-labeling mediate the effects of confusion (as stimuli and cognitive reactions) and negative WOM, distrust, and dissatisfaction (behavioral responses). Thus, we further propose:

H6: Negative emotions mediate the relationships between consumer confusion and ethical food purchasing intentions.

Figure 1 illustrates our conceptual model and relevant hypotheses.

[Figure 1 about here]

### **3. Method**

#### *3.1. Participants and procedures*

This study focuses on consumers who live in urban mainland China with over 18 years old. Through an online questionnaire, 513 respondents were recruited via a professional online survey website ([www.sojump.com](http://www.sojump.com)), of which 505 were usable. Information presented in Table 1 presents an overview of the socio-demographic profile of respondents which in comparison to the population are relatively young and have high levels of education. It is

acceptable since the purpose of this study is to examine the relationships among constructs instead of presenting a conclusive segmentation of the population (Aertsens et al. 2011).

[Table 1 about here]

The items of the questionnaire were written in English and then translated into Chinese by authors and a researcher, who are qualified in both languages and the field of study. To ensure the validity of the content, the final Chinese version was translated back into English. The back-to-translation questionnaire items are the same as the original English items. Significant concern was paid to identify the misunderstandings caused by translation errors. The questionnaire was pre-tested with 30 consumers to ensure that it is easily understandable for the respondents.

### *3.2. Construct measurement*

A structured questionnaire in various formats was developed, where the position of each item was changed to avoid response formatting errors that could lead to common method variance (Podsakoff et al. 2003). After an introduction explaining the study's purpose and guaranteed the confidentiality of the data, respondents screening questions identified unsuitable participants who were not aware of ethical food which took no further part in the study. The main questionnaire consisted of the four essential constructs, which were measured using a 'seven-point Likert scale ranging from 1 to 7,' with ratings from 'strong disagreement' to 'strong agreement.' The last part of the questionnaire gathered socio-demographic information.

All constructs were chosen from existing studies. Consumer confusion (CC) was measured with items developed by Walsh and Mitchell (2010) and Walsh et al. (2007) using four items. The negative emotions scale was adapted from Chan (2001). Two items from Chan's (2001) original measurement were deleted according to the feedback during pre-

testing. Personal ethical obligations (PEI) and ethical purchase intention (EPI) were measured with a two-item scale, used by Sparks, Shepherd, and Frewer (1995) and Ramasamy and Yeung (2009) respectively.

## **4. Results**

### *4.1. Confirmatory factor analysis*

A two-step structural equation modeling was conducted to test our hypotheses (Gerbing and Hamilton, 1996). First, exploratory factor analysis (EFA) was used to examine the scale items to identify poorly fitting items, and then confirmatory factor analysis (CFA) provided further refinement of the scale items. Data were analyzed using SPSS statistics 24 and Amos 24 software packages. Table 2 shows the mean and standard deviation of the items of constructs measurements used in this study. The reliability of the construct was confirmed by two measurements, factor loadings and reliability coefficients (CR). Regarding the quality of the measurement model, the loadings of all items exceed 0.5. Meanwhile, the created model provided a set of CRs with values ranging from 0.760 to 0.841, which is within 0.7 of the guidance level (Hair, Black, Babin, & Anderson, 2010).

[Table 2 about here]

Convergent validity and discriminant validity were used to confirm the validity of the constructs. As shown in Table 2, the values of average variance extracted (AVE) for each construct are all less than their CR, ranging from 0.517 to 0.672 respectively, which indicates the convergent validity to be upheld. The discriminant validity to be tested through the measurements of AVE, maximum shared variance (MSV) and average shared variance (ASV). As presented in Table 2, discriminative validity is confirmed for all five constructs, their AVE values exceed those of their MSV and ASV. Thus, the measurement model is acceptable in terms of tests of reliability and validity are satisfied.

The fit indices presented in Table 2 suggest that the measurement model adequately represents the input data. Following with Bagozzi and Yi (2012), all the values for fit indices were above the recommended threshold (i.e.  $\chi^2/df < 3.0$ , RMSEA  $< 0.07$ , CFI  $\geq 0.9$ , SRMR  $< 0.07$ , and GFI  $\geq 0.9$ ). Therefore, the proposed and assessed model exhibits high and appropriate levels of robustness. The development of an SEM represents an appropriate next stage of analysis.

#### *4.2. Assessment of common method bias (CMB)*

In behavioral studies, common method bias (CMB) is a common problem when the same respondent evaluates predictors and standard variables (Mittal & Dhar, 2015). Harman's single-factor analysis (Podsakoff et al., 2003; Mittal & Dhar, 2015), which is one of the most widely used approaches, checked for CMB. If a single-factor accounts for the majority (% of variance  $>50\%$ ) of the variance in un-rotated factor analysis, it means there is the CMB issue in the model. The results (shown in Table 3) indicated that the greatest covariance explained by one factor is less than 50%, which is 37.808%. Hence, CMB was not a problem in this study.

[Table 3 about here]

#### *4.3. Results of the structural model*

In the SEM, the overall fit measures of the full model indicate that the model fits very well ( $\chi^2/df = 2.285$ ; RMSEA = 0.050; CFI = 0.971; GFI = 0.972; SRMR = 0.0486), as all the values for fit indices were above the recommended threshold (i.e.  $\chi^2/df < 3.0$ , RMSEA  $< 0.07$ , CFI  $\geq 0.9$ , SRMR  $< 0.07$ , and GFI  $\geq 0.9$ ) suggested by Bagozzi and Yi (2012).

The results of the SEM (shown in Table 4) presents the path coefficients and related p-values for each of the hypotheses in the theoretical model. Consumer confusion causes significant growing in negative emotions (H1:  $\beta=0.554$ ; p-value  $< 0.001$ ). Personal ethical

obligations (H4:  $\beta=0.259$ ; p-value < 0.001) and negative emotion (H1:  $\beta=0.169$ ; p-value = 0.003) both have significant positive effects on their ethical purchase intentions. Meanwhile, higher negative emotions (H3:  $\beta=0.491$ ; p-value < 0.001) leads to higher levels of consumers' personal ethical obligations. Thus, the empirical results strongly support all the proposed hypotheses (see Fig. 2).

[Table 4 about here]

[Figure 2 about here]

#### *4.4. The mediation role of negative emotions and personal ethical obligations*

The mediation role of personal ethical obligations (PEO) is explored by testing whether negative emotions (NE) influence on ethical purchase intentions (EPI), is mediated through consumers' personal ethical obligations. The two-step process (Hair et al., 2010) was conducted. Step one established if a significant association exists between NE and EPI. Step two estimated the mediated model with PEO as a mediator. If both the direct and indirect effects are significant, it means PEO partially mediated the relationships between NE and EPI. If the direct effect becomes insignificant when the mediator PEO is added and that the indirect effect is significant, it means PEO fully mediated the links between NE and EPI. Indirect infers that the direct effect was not significant, but that indirect effect was (Hair et al., 2010). This study used the bootstrapping method (suggested by Preacher and Hayes (2004, 2008), to test the direct and indirect effects of negative emotions on ethical purchase intentions. Shrout and Bolger (2002) posited that developments in statistical theory provide alternative methods for testing direct and indirect effects in mediation models and that bootstrapping is a particularly useful approach.

Following the same steps, we tested the mediation effects of negative emotions (NE) on the link between consumer confusion (CC) and EPI. The results (shown in Table 5) indicate

that the effect of NE on EPI, is partially mediated through PEO, as all the direct and indirect effects are significant. Meanwhile, NE has indirect only mediation on the relationship between CC and EPI, since only the indirect effect exists but all the direct effects are not significant (Zhao, Lynch, & Chen, 2010; Memon, Cheah, Ramayah, & Chuah, 2018).

[Table 5 about here]

## **5. Discussion and Conclusion**

The main objective of this study was to examine if consumer confusion and negative emotions relating to food safety issues drive intentions to purchase ethical food. The results indicate that there are positive links between consumers' ethical purchase intentions and three psychological drivers (consumer confusion, negative emotions and personal ethical obligations). Our findings provide several theoretical and practical contributions, as well as valuable insights for policymakers hoping to promote ethical and sustainable food production and consumption.

### *5.1. Implications for theory*

This study attempts to fill a gap in the literature by examining ethical food consumption as a coping strategy when consumers are confused and unhappy about food safety. By doing so, the study makes several contributions. First, the findings of the current study lend support to the general hypothesis that confused consumers are more likely to experience negative emotions, such as fright, anger and frustration ( Moon, Costello, & Koo, 2017; Mitchell, Walsh, & Yamin, 2005). Thus, this study expands the scope of the food preference literature by showing how consumer confusion with regards to identifying safe food products can evoke negative emotions regarding food safety issues.

Second, this study provides new evidence that consumers are willing to switch to ethical products as a coping strategy when they experience negative emotions (such as anger and fear due to food safety crises and scandals). This is consistent with the results of prior studies that health and environmental concerns drive the purchase of organic products (Ghazali et al., 2017; Rana & Paul, 2017; Verhoef, 2005) as well as products made by ethical companies (Andersch et al., 2019). Our findings complement those of Li et al. (2017) who suggest that negative emotions caused by the food safety scandals have a negative impact on the subjective norms and purchasing intentions of Chinese consumers.

Third, our study further reveals that negative emotions regarding food safety can heighten personal ethical obligations that in turn, influence ethical purchase intentions. In other words, the more consumers are concerned about food safety, the more they feel obligated to safeguard themselves, and subsequently purchase and consume ethical food. Most previous studies have not paid attention to exploring the possibility that personal obligations could be affected by negative consumer emotions. Since the formation as well as the activation of a moral norm, is likely to be based on the interplay of cognitive, emotional, and social factors (Bierhoff, 2002), strong negative emotions may trigger personal ethical obligations and led to the development of a coping strategy.

Finally, this study reveals that negative emotions regarding food safety have an indirect-only mediation effect on the link between consumer confusion and consumers' ethical purchase intentions. This means consumer confusion over food safety has no direct effect on ethical purchase intentions. In contrast, Moon et al., (2017) found that confusion had direct negative outcomes such as negative WOM, distrust, and dissatisfaction, as well as had an indirect effect through the mediation of negative emotion. Our finding indicates that confusion has a direct effect on negative emotions but does not increase intentions to purchase ethical products.

### *5.2. Implications for practice*

The findings of this study indicate that negative emotions about food safety concerns increase intentions to purchase ethical food alternatives. The main implication is that ethical businesses with strong corporate social responsibility (CSR) records should capitalize on opportunities to position their products as ethically produced and safe to consume. Business firms should communicate with the public by showing their empathy with consumers' negative emotions and focusing on the positive gains that consumers can obtain from engaging in ethical consumption. However, it should be recognized that positive action promoting ethical consumption is only a starting point. In order to build and maintain demand for ethical products, all members in the food supply chain including growers, manufacturers and distributors need to further develop and consistently implement food safety programs, and encourage consumers to act ethically by not only providing the highest levels of food security and safety, but promoting a sustainable, fair and just society, subsequently generating long term purchases and customer loyalty.

From a policy perspective, although Chinese policies require labels for all processed foods and ingredients, our results show that Chinese consumers remain confused about food safety. To resolve this problem, there should be stricter regulations and greater transparency of the sources, production and distribution processes of food products. Moreover, the government could enforce standardization of food labeling and develop educational campaigns that inform consumers about food labels. Policymakers could further encourage the media to reveal and report companies and individuals involved with the illegal production or sales of unsafe food products and ensure that they are prosecuted. It is essential to rebuild consumers' confidence and positive emotions towards food safety through advocating the ethical production of food.



### *5.3. Limitations and future research*

This study has some limitations which provide avenues for future research. First, the focus of this study is food products in mainland China. As the results of this study cannot be generalized to other services, markets, and countries additional research in these areas would be valuable. Future studies could investigate the purchase experience of other products or make comparisons between consumers' perceptions of ethical products in Eastern and Western countries. Second, this study uses a cross-sectional survey, which is not able for us to observe the dynamic changes in consumer behavior. Hence, additional studies of a longitudinal nature or in nations with different moral cultures would be useful. Third, we focused on consumers who were aware of ethical food. Further research on the degree of awareness of ethical food would provide useful information on the size of the potential market and help to promote ethical consumer practices to those who are not aware of ethical products. Fourth, food shopping is a social practice, where moral norms and ethical obligations are influenced by social contexts. Additional research would provide new insights by considering the effects that social contexts (such as family relations, social networks, access, social status and culture) could help drive ethical food consumption.

Finally, the study focuses on exploring the influence that consumer confusion and negative emotions have on consumers' ethical food purchase intentions. However, the factors that drive confusion and negative emotions were not empirically examined. Future research could explore the factors that influence consumer confusion and negative emotions. Moreover, additional research could extend stress coping theory to build and test a model of the links between cognitive, emotional, and social factors and ethical consumption. Better understanding such relationships would assist policymakers and practitioners to develop interventions and practices for improving food safety and consumer welfare.

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**Table 1.** Sample profile (n=505)

	Sample (%)
Gender	
Male	52.7
Female	47.3
Age group	
18-21	3.4
22-26	17.7
27-35	38.0
36-45	21.7
46-50	8.9
51 and older	10.3
Education	
High school and below	17.4
College or university diploma	68.1
Master	11.5
PhD and above	3.0
Annual household income (RMB)	
Less than 20,000	13.3
20,000-40,000	26.4
40,001-60,000	23.0
60,001-80,000	11.5
80,001-100,000	9.1
100,001-120,000	6.2
More than 120,000	10.5

**Table 2.** Construct measures, reliability and validity

Construct measures	Mean	SD	Factor loading	Reliability and validity
<b>Consumer confusion (regarding food safety)</b>				
Due to the great similarity of many food products with respect to safety features, it is often difficult to detect this product.	6.182	0.931	0.852	CR=0.835 AVE=0.562 MSV=0.289 ASV=0.140 Cronbach's $\alpha$ =0.841
When purchasing food product I rarely feel sufficiently informed with product source and production process.	6.255	0.992	0.704	
There are so many unsafe food products I can purchase that I am really confused with respect to safety features when purchasing this product.	6.283	0.882	0.798	
When purchasing food product, I feel uncertain about its safety features.	6.356	0.886	0.624	
<b>Negative emotions (regarding food safety)</b>				
It frightens me to think that much of the food I eat is unsafe.	5.715	1.369	0.583	CR=0.783 AVE=0.551 MSV=0.289 ASV=0.153 Cronbach's $\alpha$ =0.762
I become incensed when I think about the harm that unsafe food is causing to human being life.	6.153	1.055	0.798	
When I think of the ways in which some industries are producing unsafe food, I get frustrated and angry.	6.109	1.126	0.822	
<b>Personal ethical obligations</b>				
I feel that I have an ethical obligation to appeal to eliminating unethical producers.	6.624	0.762	0.826	CR=0.835 AVE=0.717 MSV=0.214 ASV=0.140 Cronbach's $\alpha$ =0.833
I feel that I have an ethical obligation to support businesses or producers that are socially responsible.	6.486	0.834	0.867	
<b>Ethical purchase intentions</b>				
I am considering switching to other food products for ethical reasons	5.673	1.137	0.669	CR=0.798 AVE=0.670 MSV=0.130 ASV=0.069 Cronbach's $\alpha$ =0.772
I plan to switch to the ethical versions of a food product	5.551	1.270	0.945	
<b>Fit indices:</b> $\chi^2/df= 1.864$ ; RMSEA = 0.041; CFI = 0.979; GFI = 0.968; SRMR = 0.0387				

**Notes:** CR, construct reliability; AVE, average variance extracted; MSV, maximum shared squared variance; ASV, average shared squared variance

**Table 3.** Common method bias test - Harman's single factor analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.159	37.808	37.808	4.159	37.808	37.808
2	1.695	15.413	53.221			
3	1.270	11.544	64.765			
4	1.086	9.871	74.636			
5	.627	5.698	80.334			
6	.571	5.188	85.522			
7	.398	3.618	89.140			
8	.358	3.254	92.394			
9	.323	2.938	95.332			
10	.278	2.527	97.858			
11	.236	2.142	100.000			

Extraction method: Principal component analysis.



**Table 4.** Results of hypothesis testing

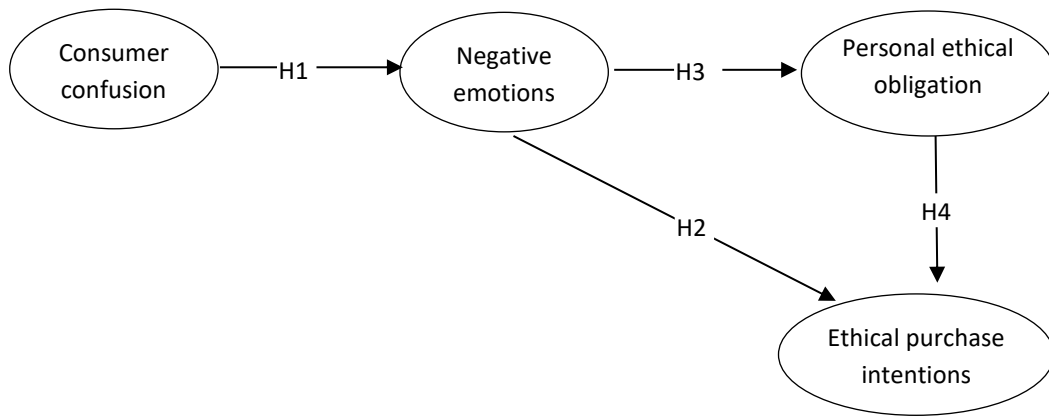
Hypothesis	Path Coefficients	Estimate ( $\beta$ )	Proposed effect	Sig. level (P)	Decision
H1	CC $\rightarrow$ NE	.554	Positive	***	Accepted
H2	NE $\rightarrow$ EPI	.169	Positive	.003	Accepted
H3	NE $\rightarrow$ PEO	.491	Positive	***	Accepted
H4	PEO $\rightarrow$ EPI	.259	Positive	***	Accepted

Note: \*\*\*p < 0.001

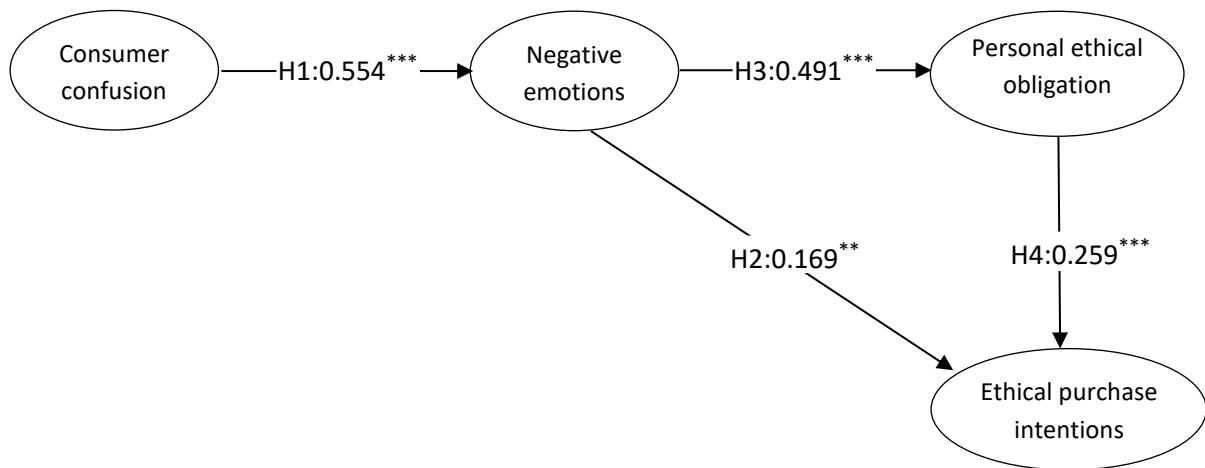
**Table 5.** Results of mediation analysis

Relationships	Direct without mediator - $\beta$ (P)	Direct with mediator - $\beta$ (P)	Indirect $\beta$ (P)	Result
NE $\rightarrow$ PEO $\rightarrow$ EPI	.332(***)	.205(***)	.120(.004)	partial mediation
CC $\rightarrow$ NE $\rightarrow$ EPI	.053(NS)	-.038(NS)	.131(.003)	Indirect-only mediation

Note: \*\*\* $p < 0.001$



**Fig.1.** Conceptual model



Notes: \*\*\*significant at  $p < 0.001$ ; \*\*significant at  $p < 0.05$

**Fig. 2.** Results of structural equation modeling