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Value creation from a food traceability system based on a hierarchical model of consumer personality traits

Food traceability system

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Abstract

Purpose – A food traceability system that provides detailed information on food production, processing, transfer, and distribution can create value in food exchange. This study aims to investigate which type of consumer personality places greater value on the food traceability label.

Design/methodology/approach – According to the meta-theoretic model of motivation and personality (3M), this study develops a framework that links personality traits with food safety issues. Data are collected from a survey of consumers in shopping malls. The research hypotheses are tested using structural equation modeling.

Findings – Based on the 3M hierarchical model, consumers who have open, conscientious, and extroverted personalities, and material and body needs tend to have higher needs for learning and health consciousness. They care more for food value and have positive perception of food traceability labels. This results in intentions to purchase products with a food traceability label.

Practical implications – Using their conclusions on the relationship of personality traits with a food traceability system, the authors provide suggestions for businesses planning marketing strategies to gain competitive advantages. For consumers, a food traceability system creates value in food exchange. Regarding policy concerns, the government should regulate the implementation of a food traceability label to disclose comprehensive information regarding food safety.

Originality/value – Although various constructs are linked to food traceability, few studies have focused on the value of food exchange. Consumers with specific personality characteristics have different perceptions and reactions to a food traceability system. This study can fill the knowledge gap regarding the relationship between the value of food exchange and consumer personality traits.

Keywords Consumer behaviour, Food safety, Personality

Paper type Research paper



1. Introduction

Recently, consumers have faced numerous food safety incidents, such as outbreaks of mad cow disease, and have consequently become more concerned with the quality and safety of the food they eat. According to the UK Food Standards Agency, a survey found that 75 per cent of consumers are concerned with food safety (Jansen-Vullers *et al.*, 2003).

Consumers want to obtain sufficient information on the food before purchasing. To create value in food exchange, firms have begun to pay attention to the emerging issue of food traceability (Lupien, 2005). The European Union (EU) General Food Law Regulation (No. 178/2002) defines traceability as “the ability to trace and follow a food, feed, food-producing animal, or substance through all stages of production and distribution.” The traceability system provides detailed information of food production, processing, transfer, and distribution, including the birthplace of animals, feeding, date of sale, slaughtering information, and other supply chain-related information (Golan *et al.*, 2004).

The traceability system, as a rapid response system for conveying detailed information of production, processing, and distribution (Schulz and Tonsor, 2010), can be regarded as an information management platform (Canavari *et al.*, 2010) to assist consumers and the government in checking the responsibility of each firm from food production to distribution. Thus, as a proactive approach, the traceability system creates significant incentives for firms to improve food quality. Firms with traceability systems can gain competitive advantages to differentiate themselves from their competitors (Tompkins and Ang, 1999; Canavari *et al.*, 2010). Because the government and businesses have devoted their efforts to establishing a good traceability system, food safety can be improved gradually, while consumers risk perception of food safety can be decreased. Finally, food value can be created through a food traceability system.

Researchers have provided two topics related to value in business markets that are worthy of further study, namely, value of products and value of buyer-seller relationships (Lindgreen and Wynstra, 2005). Clarifying the value created by a food traceability system simultaneously responds to the two important topics “value of products” and “value of supply-chain relationship.” Specifically, selling companies through traceability systems can ensure more detailed information of their products is provided, thereby adding value to their products. In contrast, traceability systems with high-quality information can offer the buying company reliable origin of products, enabling buyers to make adequate purchase decision. Thus, the implementation of traceability systems, as part of an ongoing relationship based on information sharing, is closely associated with supply chain relationship management practices (Hingley, 2001, 2005; Lindgreen, 2003; Canavari *et al.*, 2010).

Food traceability has recently become an important issue (Fischer and Frewer, 2008). Numerous studies have explored the design, management, and consumer perception of a food traceability system (Folinas *et al.*, 2006; Gunnar *et al.*, 2007; Jansen-Vullers *et al.*, 2003; Kelepouris *et al.*, 2007; Chryssochoidis *et al.*, 2009; ManiKas and Manos, 2009). Studies on food traceability have also explored information asymmetry, the role of traceability systems (Hobbs, 2004; Golan *et al.*, 2004), consumer recognition and perception of traceability systems (Dickinson and Bailey, 2005; Choe *et al.*, 2009) and consumers’ willingness to pay for traceability systems (Dickinson and Bailey, 2002, 2005; Pouliot, 2011; Lee *et al.*, 2011). This brief review of literature shows that various constructs are linked to food traceability; however, few studies have emphasised the relationship value of food exchange and consumer characteristics. Regarding consumer values, consumers with specific personality characteristics may have different perceptions and reactions to the issue of food safety and a food traceability system. Businesses that are developing strategies for market segmentation, market targeting, and product positioning can benefit from understanding the relationship between personality traits and value created by a

food traceability system. Thus, this study fills the research gap regarding the relationship between the value of food exchange and consumer personality traits. Food traceability system

Mowen (2000) introduced a meta-theoretic model of motivation and personality (named the 3M model of motivation and personality). The model describes a hierarchical structure that links elementary, compound, situational, and surface traits to predict consumer intentions and behaviours. The intention to purchase products with a food traceability label can be taken as a surface trait that describes differences in behavioural tendencies in a specific situation, that is, the exchange of food. This study discusses which type of consumer personality cares about food traceability labels based on the 3M hierarchical model of personality (Mowen, 2000, 2004). Using a survey and structural equation modelling, this study found that consumers with a higher degree of extraversion, openness, conscientiousness, body needs, and material needs tend to have a positive perception of food traceability labels. Finally, we discuss the practical implications of food value through the relationship of consumer personalities with the food traceability system.

2. Conceptual background and hypotheses

2.1 Food value and traceability

From the perspective of exchange food value, numerous quality and safety problems in the exchange process can influence food value. Consumers are increasingly concerned about what they eat, whether a food is from a sustainable source, whether it is produced using eco-friendly methods, and whether the production, transportation, and storage conditions guarantee food safety. An empirical finding shows that consumer concern regarding food safety reflects emotional and cognitive risk assessments (Sapp and Bird, 2003). Food entities can avoid or prevent most concerns by developing and applying good practice systems of “traceability.” Traceability systems are typically introduced in response to information asymmetries that arise from food safety and food quality attributes (Hobbs, 2004). Good practice systems at all levels of the food chain facilitate the identification (tracing) of all food, feed ingredients, food products, and food input, such as animals, for food use. Therefore, deploying traceability systems can improve food safety by enabling firms to identify and resolve food safety or quality problems (Chrysochoidis *et al.*, 2009; Golan *et al.*, 2003). Thus, an optimal food traceability system can create food exchange value for consumers.

According to studies on food traceability from a consumer perspective, failure to implement a well-managed traceability system results in the loss of consumer trust (Hobbs, 2004; Folinis *et al.*, 2006; Kelepouris *et al.*, 2007). A food traceability system can enable consumers to recognise food quality, trust a product/brand, reduce uncertainty (Choe *et al.*, 2009), improve purchase confidence (Van Rijswijk *et al.*, 2008), and meet their right to make informed choices in the food market (Beekman, 2008). Thus, consumers are willing to pay significant amount of money (i.e. an average 10 to 30 per cent premium) to upgrade a product to an otherwise identical product with traceability labeling (Dickinson and Bailey, 2002, 2005; Moon and Balasubramanian, 2003; Pouliot, 2011; Lee *et al.*, 2011). However, the number of studies on consumer willingness to pay for traceability and food safety also found that a food traceability system alone may not receive the highest bid or even obtain a protest bid from consumers (that is, consumers are unwilling to pay a premium for traceability labeling). This is probably because most consumers may consider traceability to be a public good (Dickinson and Bailey, 2002; Moon and Balasubramanian, 2003).

Regarding consumer perception of traceability, Chrysochou *et al.* (2009) identified factors (for example, the amount of information provided, impact on product quality and safety, and impact on consumer health and the environment) that influence consumer perceptions of a food traceability system. The results reported by Van Rijswijk and Frewer (2008) indicate that European consumers believe that both food quality and safety are related to traceability, with a stronger relationship between traceability and safety.

These discussions assume that if consumers care about food value, they benefit from information on the food traceability label. In other words, consumers realize that the information on a food traceability label can assist them in ensuring food safety. Thus, they have a positive perception of food traceability labels. Consumers who care about food value and have a positive perception of food traceability labels determine that their food is safe under the guarantee of the label. Therefore, they have a greater intention to purchase products with a food traceability label:

- H1. Consumers who care about food value have a positive perception of food traceability labels; and greater intention to purchase products with a food traceability label.
- H2. Consumers with a positive perception of food traceability have greater intentions to purchase products with a food traceability label.

2.2 Food traceability and the hierarchical model of personality

Firms that know which personality traits induce consumers to care about food value and purchase food with traceability labels benefit when developing marketing strategies. The intention to purchase a product with a food traceability label can be considered a surface trait that describes differences in behavioural tendencies in a specific situation, namely, the exchange of food. A surface trait reveals a concrete personality characteristic based on a 3M hierarchical model of personality developed by Mowen (2000), which adopts a trait theory approach for examining personality (Licata *et al.*, 2003; Mowen, 2000, 2004). The 3M model proposes that behaviour is motivated when an actual or anticipated outcome diverges from one or more personality traits acting as reference points for evaluating outcomes. Based on hierarchical approaches to personality, traits are arranged in a four-level hierarchy comprising elemental, compound, situational, and surface traits. Elemental traits result from genetics and the individual's early learning history. Compound traits are assumed to result from the effects of elemental traits and cultural influences. Situational traits differ from elemental and compound traits because they operate within a situational context. Surface traits represent highly specific response dispositions that result from the effects of elemental, compound, and situational traits and the context-specific environment (Mowen, 2000).

When applying a 3M model to the food safety context, consumer concern for food value, perception of food traceability labels, and intention to purchase products with a food traceability label can be regarded as different types of personality traits. Researchers have demonstrated the importance of the relationship between personality traits and food safety in consumer behaviour (Fischer and Frewer, 2008). Thus, this study further investigates the relationship between food safety and personality traits to understand the various mechanisms underlying consumer reactions to a food traceability system.

Although related studies have discussed the relationship between elemental traits and situational traits (Kell *et al.*, 2010), and between elemental traits and surface traits (Swickert *et al.*, 2010), the 3M model offers a comprehensive framework to link personality traits with behavioural predisposition. The 3M model of motivation and personality provides a valid and reliable scale for strategists. Specifically, using the personality trait model can identify health-conscious consumers, and the findings can provide business marketing strategies, such as market segmentation, targeting, and positioning.

2.3 Food safety context and four-level traits

According to the 3M model of personality (Mowen, 2000, 2004), though intention to purchase products with a food traceability label can be considered a surface trait, consumer concern for food value and perception of food traceability labels are examples of situational traits, which describe individual differences that influence behaviour within the context of a specific consumption situation (Mowen, 2000). Situational traits and surface traits are assumed to have a genetic basis (Buss, 1988), that is, elemental and compound traits. Elemental traits are defined as the basic underlying predispositions caused by an individual's genetics and early learning history, whereas compound traits are predispositions resulting from the effects of multiple elemental traits and the individual's learning history and culture (Mowen, 2000). This study specifies the consumption situation as consuming products with a food traceability label, and discusses the relationship between consumers with compound and elemental traits and their intention to pay greater attention to food safety and food traceability labels.

In this study, we propose that the needs for learning and health consciousness are consumer compound traits related to food safety. Relative to elemental traits, compound traits have fewer applications and specific functions for guiding behavioural programs (Mowen, 2000, 2004). The needs for learning, which is one of the six compound traits in the 3M model, is developed to measure the differences in "information resource needs" (Mowen, 2000, 2004). Thus, this study proposes that consumers with greater needs for learning care more about food value; thus, they have a positive perception of food traceability labels:

H3. Consumers with greater needs for learning have more awareness of food value; and a positive perception of food traceability labels.

Health consciousness is an external characteristic that refers to how people care for their health (Jayanti and Burns, 1998). Because compound traits combine with behavior to create situational traits (Mowen, 2000, 2004), we proposed that health consciousness is another compound trait that creates situational traits under the situation of food safety. Betz and Borgen (2010) referred to health consciousness as a type of personality trait. Chrysochou *et al.* (2009) indicated that consumer consciousness of health and the environment are factors that influence consumer perception of a food traceability system. Hwang and Cranage (2010) discovered that health consciousness can influence consumer perception of menu items. Adams and Mowen (2005) found an association between health consciousness and behavior. Thus, this study proposes that health-conscious consumers are more careful regarding food value and have a positive perception of food traceability labels. Researchers have

predicted that health consciousness is positively associated with preventive health care behavior (Jayanti and Burns, 1998). This study further predicts that consumers who are more health conscious have a higher intention to purchase products with food traceability labels:

- H4. Consumers who are more health conscious have a greater awareness of food value; positive perception of food traceability labels; and higher intention to purchase products with food traceability labels.

2.4 Food safety context and elemental traits

Elemental traits in the 3M model of motivation and personality are the most basic components of the personality-motivational structure of the individual, and the source of differing values (Mowen, 2000, 2004). Using the segment of elemental traits, this study develops various marketing strategies for different consumer subsets that possess a similar intrapsychic basis for their characteristics. Based on the elemental traits in the 3M model, and two compound traits in the food safety situation previously discussed, this study contends that two elemental traits, openness and conscientiousness, are associated with needs for learning, and one elemental trait, body needs, is associated with health consciousness.

According to definitions by Mowen (2000, p. 29), openness indicates the need to find novel solutions, express original ideas, and employ imagination when performing tasks. Conscientiousness refers to the need to be organised, orderly, and efficient when executing tasks. Body needs are the need to maintain and enhance the body (Mowen, 2000, p. 29). Mowen (2000) presented a meta-analysis of predictors for the needs for learning, and the results showed that openness, conscientious, and arousal needs are significantly positive predictors. However, Mowen (2000) also indicated that the need for arousal has a relative relationship with the openness construct. Butt and Philips (2008) reported that consumers who are open to experiences and conscientious are willing to try new things and accept new information. A number of studies (Chamorro-Premuzi and Furnham, 2009; Furnham *et al.*, 2009) also examined the relationship between openness and learning approaches, and found a positive link between openness and deep learning. Thus, this study proposes that open and conscientious consumers enjoy learning new things; therefore, the two elementary traits are positively associated with needs for learning.

In this study, body needs, defined as the need to protect and enhance the body's resources, are considered an elemental trait related to food safety. Adams and Mowen (2005) discussed body needs, health motivation, and exercise behaviour, and found that a significant relationship exists between them. In other words, consumers with a higher level of body needs are more concerned with their personal health. Thus, this study suggests that body needs, instead of other elemental traits, are more related to health consciousness because pursuing a health body can be considered a basic human need:

- H5. Consumers with elemental traits of openness and conscientiousness are positively associated with the needs for learning.
- H6. Consumers with the elemental trait of body needs are positively associated with health consciousness.

3. Methodology

3.1 Research framework and measurements

This study focused on the context of food safety. Specifically, we investigated consumer concern for food value and perceptions of food traceability labels based on Mowen’s 3M model of motivation and personality. According to the 3M hierarchical model, this study developed a framework linking personality traits with food safety issues. In this framework (see Figure 1), we specified concern for food value and perception of food traceability labels as two situational traits of consumers, and intention to purchase products with a food traceability label was considered a surface trait. The compound traits used in this study for creating situational traits were needs for learning and health consciousness. Additionally, the basic elemental traits in the food safety situation were openness, conscientiousness, and body needs.

Based on the research framework, this study defined and measured eight variables. Consumer intention to purchase products with a food traceability label was defined as a purchase possibility to buy products with a food traceability label; three questions using the five-point Likert scale by Yoo and Lee (2009) were adopted to measure this variable (see the Appendix). In this study, perceptions of food traceability labels involved consumer perception of the information on a food traceability label. Therefore, we employed eight questions using a five-point Likert scale to measure this variable, with reference to the information quality measurements by Stair (1992). Concern for food value referred to the degree of consumer concern regarding food safety information. According to the dimensions of food safety information established by food traceability regulations, eight questions using a five-point Likert scale were used to measure this variable. Finally, the measurements of two compound traits and three elemental traits were designed based on scales in the study by Mowen (2000). All the measurements in this study are listed in the Appendix (see Table AI).

3.2 Research method

Using convenience sampling, a survey was conducted among consumers over the age of 18 in Taiwan. Data were collected from consumers in famous shopping malls, such as supermarkets or hypermarkets selling food and goods for daily use, in Taipei, Taiwan. Although numerous studies related to traceability have been conducted on consumer behaviour in Europe and other Western countries, few studies have focused on countries in Asia. Based on existing literature, consumers from varying countries or

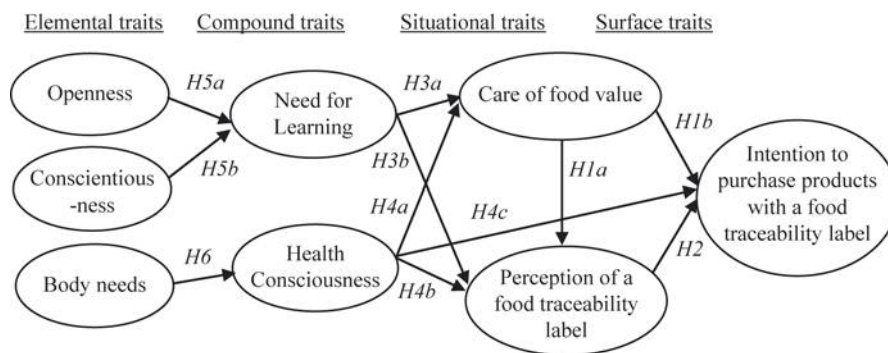


Figure 1.
The research framework

regions were predicted to have different concerns of food quality and safety, even the utility of traceability (Van Rijswijk and Frewer, 2008). Wu *et al.* (2011) have examined the acceptability of certified traceable food among consumers in numerous regions of China. However, because Taiwan has a higher level of economic development compared to China, it is worthy of further investigation.

Similar to many other emerging markets, Taiwan is in the initial stages of protecting food safety by developing food traceability systems. However, with Taiwan's continued economic development in recent years, Taiwanese consumers have begun to pay significant attention to food safety; thus, establishing a food traceability system is now considered a crucial policy by the Taiwanese government. The results of this survey in Taiwan can be generalised for other countries in the initial stages of improving food value through a food traceability system.

This study developed a questionnaire comprising six parts, including questions on elemental traits, two compound traits, two situational traits, one surface trait, past experiences of purchasing products with a food traceability label, and demographic data. Consumers buying food in shopping malls were invited to complete this questionnaire using a picture of a food traceability label taped to a box of pork. Following data collection, structural equation modelling (SEM) and linear structural relations (LISREL) software were used to test the research hypotheses.

4. Results

4.1 Data analysis

For this study, we collected 353 valid questionnaires. According to the data, 62 per cent (220/353) of consumers were aware of the food traceability system, 54 per cent (191/353) had seen the food traceability label, and 33 per cent (118/353) had purchased products with a food traceability label. Regarding the sample characteristics, Table I shows the sample demographics and the results of tests to determine whether the demographic characteristics had a significant influence on respondents' concern for food value, perception of food traceability labels, and intention to purchase products with food traceability labels. Initial analysis showed that participants between 40 and 49 years of age care more for food value and have a higher perception of and purchase intention toward products with a food traceability label. In addition, married people care more and have a higher perception of food traceability, and show greater purchase intention toward products with a food traceability label. Furthermore, the participants who were living with grandparents and children care more about food value and have a higher perception of food traceability labels.

Before hypotheses testing, this study confirmed the reliability of the basic constructs of most elemental traits in Mowen's scale. Therefore, seven elemental traits based on Mowen's scale were included in the questionnaire, that is, measurements of openness, conscientiousness, extroversion, agreeability, neuroticism, material needs, and body needs. Thus, the 12 latent variables in this model were tested for scale reliability and validity.

Regarding the reliability analysis of the 12 latent variables in this study, the construct reliability (CR) of each latent variable should be above 0.6 (Bagozzi and Yi, 1988). The reliability of ten constructs, excluding agreeability (CR = 0.55) and conscientiousness (CR = 0.45), were acceptable (see Table II). Regarding convergent validity, the average variance extracted (AVE) of each latent variable should be above

Demographics	<i>n</i>	%	Care of food value	Perception of a food traceability label	Purchase intention of products with a food traceability label
<i>Gender</i>					
Male	168	48	$T = 0.40$	$T = 0.55$	$T = 0.40$
Female	165	52			
<i>Age</i>					
18-29 (a)	135	38	$F = 6.62^{**}$	$F = 4.35^{**}$	$F = 4.22^{**}$
30-39 (b)	126	36	c, d > a	c > a	c > a
40-49 (c)	51	14			
50 + (d)	41	12			
<i>Education</i>					
Senior high school (a)	40	12	$F = 2.86$	$F = 9.17^{**}$	$F = 2.32$
College (b)	220	62		a > b, c	
Graduate school (c)	93	26			
<i>Marriage</i>					
Single (a)	178	50	$T = 3.39^{**}$	$T = 2.68^{**}$	$F = 3.17$
Married (b)	175	50	b > a	b > a	b > a
<i>Family members</i>					
Alone (a)	71	20	$F = 4.28^*$	$F = 3.85^*$	$F = 2.45$
Brothers and sisters (b)	105	30	c > a	c > a	
Grand-Parents and children (c)	177	50			
<i>Monthly income</i>					
Below US\$ 666	33	9	$F = 1.69$	$F = 0.99$	$F = 0.79$
US\$667 ~ 1666	102	29			
US\$1667 ~ 3333	140	40			
US\$3334 ~ 5000	46	13			
US\$5001 above	32	9			

Notes: * $p < 0.05$ (two-tailed), ** $p < 0.01$ (two-tailed), Total sample: 353

Table I.
Sample characteristics and initial analysis

0.5 (Jöresskog and Sörbom, 1993). The results (see Table II) showed that the convergent validity of material needs (AVE = 0.51), health consciousness (AVE = 0.50), perception of food traceability labels (AVE = 0.52), and intention to purchase products with a food traceability label (AVE = 0.54) were acceptable. Regarding discriminatory validity, Jöresskog and Sörbom (1993) asserted that if the interval $\psi + 1.96$ standard error did not consist of 1 (ψ is the coefficient of correlation), the model has good discriminant validity. Results of the correlation matrix (see Table III) showed that the discriminant validity of ten latent variables was acceptable. Generally, the validity and reliability of most of the scales related to each hypothesis in the research framework were acceptable.

4.2 Hypotheses testing

This study first evaluated the model fit. Results showed that the goodness of fit for this model (eight variables) was acceptable (CFI = 0.95, GFI = 0.85, AGFI = 0.83, RMR = 0.05, RMSEA = 0.05, $\chi^2/df = 2.01$). The research hypotheses were then further tested (see Table IV), and the results failed to reject all the hypotheses,

Table II.
Descriptive statistics,
reliability, and
convergent validity
analysis

Construct	Mean ^b	SD	CR	AVE
Intention to purchase products with a food traceability label (I) ^a	3.64	0.77	0.78	0.54
Care of food value (FV)	3.88	0.79	0.86	0.45
Perception of a food traceability label (P)	3.91	0.71	0.90	0.52
Needs for learning (NL)	3.75	0.72	0.60	0.34
Health consciousness (H)	3.82	0.73	0.75	0.50
Openness (O)	3.52	0.82	0.73	0.48
Conscientiousness (C)	3.91	0.62	0.45	0.22
Extroversion (E)	3.44	0.93	0.71	0.38
Neuroticism (N)	2.64	0.91	0.79	0.49
Body needs (B)	3.68	0.75	0.75	0.44
Material needs (M)	2.77	0.89	0.74	0.51

Notes: ^aThe letter in parentheses is the construct for short. ^bMean score is from 1 to 5

excluding *H3b* and *H4c*. Regarding the relationship between situational traits and surface traits in the food safety situation, consumers who care about food value have a more positive perception of food traceability labels ($\beta = 0.36, p < 0.01$, failure to reject *H1a*) and a higher intention to purchase products with a food traceability label ($\beta = 0.18, p < 0.01$, failure to reject *H1b*) than consumers who do not care about food value. Consumers with a positive perception of food traceability have a higher intention to purchase products with a food traceability label ($\beta = 0.53, p < 0.01$, failure to reject *H2*). Regarding the relationship between situational traits and compound traits, consumers with greater needs for learning have a higher awareness of food value ($\beta = 0.12, p < 0.05$, failure to reject *H3a*). Consumers with greater health consciousness are more concerned with food value ($\beta = 0.40, p < 0.01$, failure to reject *H4a*) and have a positive perception of food traceability labels ($\beta = 0.18, p < 0.01$, failure to reject *H4b*). Finally, regarding the relationship between elemental traits and compound traits, consumers with traits of openness ($\beta = 0.60, p < 0.01$, failure to reject *H5a*) and conscientiousness ($\beta = 0.45, p < 0.01$, failure to reject *H5b*) have greater needs for learning. Consumers with higher body needs were positively associated with health consciousness ($\beta = 0.91, p < 0.01$, failure to reject *H6*).

4.3 Model modification

According to the results of hypotheses testing, this study further modified the original model by deleting the path of unsupported *H3b* and *H4c*. Then, we added two elemental traits, extroversion and material needs (originally not included in the research framework), to the modified model (see Figure 2) to obtain a deeper understanding of the relationship between consumer traits and a food traceability system. Result of the goodness-of-fit evaluation of the modified model was also acceptable (GFI = 0.84, RMSEA = 0.048). The difference between the original model and the modified model was significant ($\Delta\chi^2(\Delta df) = 327.67(251) > \chi^2(251)(\alpha = 0.05) = 287.88$), with the modified model superior to the original model. Regarding each path in the modified model (see Table V), the results showed that openness, conscientious, extroversion, and material needs were associated with the needs for learning, whereas body needs and material needs were related to health consciousness. The relationship among compound

	I	FV	P	NL	H	O	C	E	N	B	M						
FV	0.42	0.05 ²	1														
P	0.63	0.04	0.41	0.05	1												
NL	0.06	0.08	0.22	0.07	0.07	0.07	1										
H	0.24	0.07	0.41	0.06	0.32	0.06	0.25	0.07	1								
O	0.04	0.07	0.10	0.07	-0.04	0.07	0.84	0.05	-0.02	0.07	1						
C	0.22	0.09	0.36	0.08	0.31	0.08	0.76	0.08	0.61	0.08	0.52	0.08					
E	0.04	0.07	0.18	0.07	0.15	0.07	0.60	0.06	0.24	0.07	0.22	0.07	0.57	0.08			
N	-0.19	0.06	-0.16	0.06	-0.13	0.06	-0.18	0.07	-0.33	0.06	-0.66	0.07	-0.47	0.08	1		
B	0.28	0.06	0.37	0.06	0.27	0.06	0.28	0.07	0.90	0.03	0.06	0.07	0.59	0.08	0.33	0.07	
M	0.01	0.07	-0.10	0.06	-0.07	0.06	0.30	0.07	-0.06	0.07	0.25	0.07	0.04	0.09	0.02	0.07	1

Notes: In the correlation matrix, each capital letter represents each variable for short. With reference in Table I, each variable was shortened by one or two capital letters. For example, "I" represents "intention to buy products with a food traceability label"

Path (hypotheses)	Λ	S.E.	<i>t</i> -value	Standardized λ
Care of food value → Perception of a food traceability label (<i>H1a</i>)	0.45	0.09	5.17*	0.36
Care of food value → Intention to purchase products with a food traceability label (<i>H1b</i>)	0.22	0.08	2.75*	0.18
Perception of a food traceability label → Intention to purchase products with a food traceability label (<i>H2</i>)	0.51	0.07	7.63**	0.53
Needs for learning → Care of food value (<i>H3a</i>)	0.11	0.06	1.93*	0.12
Needs for learning → Perception of a food traceability label (<i>H3b</i>)	-0.06	0.07	-0.80	-0.05
Health consciousness → Care of food value (<i>H4a</i>)	0.36	0.06	5.72**	0.40
Health consciousness → Perception of a food traceability label (<i>H4b</i>)	0.21	0.07	2.79**	0.18
Health consciousness → Intention to purchase products with a food traceability label (<i>H4c</i>)	0.03	0.07	0.44	0.03
Openness → Needs for learning (<i>H5a</i>)	0.63	0.10	6.12**	0.60
Conscientiousness → Needs for learning (<i>H5b</i>)	0.59	0.13	4.38**	0.45
Body needs → Health Consciousness (<i>H6</i>)	0.84	0.07	11.17**	0.91

Table IV.
Hypotheses testing

Notes: Goodness of fit of this model: $\chi^2 = 1099.96$ (df = 546), $\chi^2/df = 2.01$, CFI = 0.95, GFI = 0.85, AGFI = 0.83, RMR = 0.05, RMSEA = 0.05; * $p < 0.05$ (one-tailed), ** $p < 0.01$ (one-tailed)

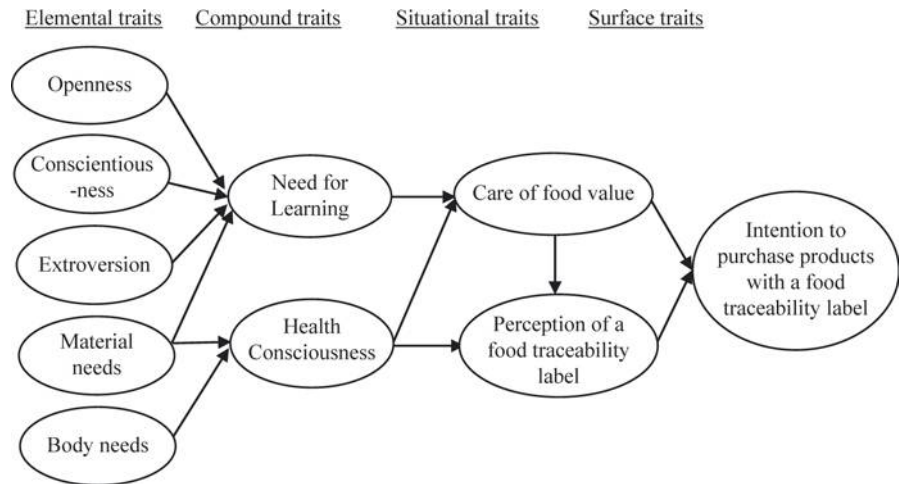


Figure 2.
Modified model of food traceability and consumer traits

traits, situational traits, and surface traits manifested the same pattern as that of the original model.

5. Conclusions

5.1 Discussion

This study adopted a framework of the 3M model of motivation and personality to analyse consumer perceptions of food traceability labels. A food traceability system can create food value by providing detailed information of food production, processing,

Path	λ	SE	<i>t</i> -value	SD λ	Food traceability system
Care of food value → Intention to purchase products with a food traceability label	0.23	0.07	3.08**	0.33	
Care of food value → Perception of a food traceability label	0.43	0.09	4.89**	0.19	
Perception of a food traceability label → Intention to purchase products with a food traceability label	0.53	0.07	7.96**	0.55	1373
Needs for learning → Care of food value	0.10	0.05	1.89*	0.12	
Health consciousness → Care of food value	0.34	0.06	5.51**	0.39	
Health consciousness → Perception of a food traceability label	0.20	0.07	2.80**	0.18	
Openness → needs for learning	0.64	0.10	6.51**	0.61	
Conscientiousness → needs for learning	0.38	0.15	2.48*	0.28	
Extroversion → needs for learning	0.31	0.09	3.32**	0.30	
material needs → needs for learning	0.10	0.05	1.88*	0.11	
Body needs → health consciousness	0.83	0.07	11.05**	0.90	
material needs → health consciousness	-0.08	0.04	-1.97*	-0.10	

Notes: Goodness of fit of this model: $\chi^2 = 1427.63$ (df = 797), $\chi^2/\text{df} = 1.79$, GFI = 0.84, ECVI = 4.69, RMSEA = 0.048; * $p < 0.05$ (one-tailed), ** $p < 0.01$ (one-tailed)

Table V.
Path parameters of modified model

and distribution to customers. This study also adopted consumer perception of food traceability labels as a situational trait based on the 3M model framework of personality. By emphasising the context of food value, this study empirically examined the relationship between consumer personality and a food traceability system.

The 3M framework had a good application value in this empirical study. Through elemental, compound, situational, and surface traits, the research framework showed a satisfactory goodness of fit after hypotheses testing. According to the results of hypotheses testing and model modification, consumers with elemental traits of openness, conscientiousness, extroversion, and material and body needs presented two compound traits, namely, the needs for learning and health consciousness. The two compound traits influenced consumer concern for food value and perception of food traceability labels, which are situational traits, and initiated a surface trait, that is, intention to purchase products with a food traceability label.

As predicted, health consciousness did not directly influence consumer intention to purchase products with a food traceability label. However, health consciousness has an “indirect” influence on purchase intentions through consumer perception of food traceability labels and concern for food value. This may be explained by characteristics in the 3M hierarchical framework. That is, the compound trait (health consciousness) is not directly associated with the surface trait (intention to purchase products with a food traceability label), yet influence occurs through the situational trait (concern for food value). In other words, this study identified a number of mediators between health consciousness and purchase intention.

The results of this study have certain limitations and constraints. Measurement of the research constructs was not perfect. The lack of good reliability and validity performance by certain elemental traits may be due to insufficient representations of the variable indicators because of limited survey capacity. However, this defect did not significantly affect the hierarchical concept of the four trait types. Furthermore,

because this study used convenience sampling, generalisation of the prediction regarding the influence of consumer demographics on the perception of value food traceability labels may be invalid. However, the 3M hierarchical framework is empirically applicable in the food safety situation and can provide insight regarding the fundamental factors influencing consumer adoption of food traceability labels.

The data in this study were collected from consumers in local shopping malls. Future studies can investigate people shopping in other distributions (i.e. department stores or traditional food shops) or other store types to generalise the conclusion of a relationship between personality traits and a food traceability system. Additionally, future studies can also examine whether the relationship between personality traits of consumers “consuming” food (but not buying food) and a food traceability system differs from the result of this study. Finally, this study also suggests retesting the model using a national or international sample to validate the research findings and improve generalizability.

5.2 Practical implications

The conclusions regarding the relationship between personality traits and a food traceability system provide certain managerial suggestions for businesses developing marketing strategies, such as market segmentation. Personality variables can be applied to segmentation decisions (Mowen, 2000; Mowen and Harris, 2003; Wansink and Park, 2000; Mooradian, 1996) because numerous researchers suggest that consumers perceive brands as possessing human personality characteristics (Aaker, 1997). According to the results, this study demonstrates that the network of personality traits may jointly influence consumer responses to marketing communications. In other words, food markets can be divided into several segments according to consumer traits (i.e. element or compound traits) or characteristics (i.e. age or marriage), and products with a traceability label will more easily attract consumer attention and stimulate their purchase intentions.

This study also contributes to the research field of product value in the business market. Regarding business operation, establishing a food traceability system can benefit the businesses in a value supply chain as well as society. Firms producing food with food traceability labels demonstrate that they focus considerably on food quality, care for food safety, and are willing to share information to maintain a good buyer-seller relationship. Food traceability systems, as a practical platform to share important information and check the responsibilities of each firm from production to distribution, can be an effective management system for producers and retailers. Despite the high implementation costs, establishing food traceability systems encourages producers to improve food quality, choose better partners, maintain substantial buyer-seller relationships, gain customer trust, and finally acquire competitive advantages. For retailers, food traceability systems also contribute to retail branding. Retailers can develop a differentiating strategy by installing easy-to-use machines inside stores for consumers to obtain food traceability information. Goods sold under the retailers’ private brand can also have a traceability label to improve consumers’ trust in the food safety of the private brand. Therefore, food traceability information benefits retailers’ reputation and competitive advantages.

For consumers, the food traceability system can create value in the food exchange because, in most countries, a food traceability system is a new regulation that explicitly reports on the food production, processing, and distribution processes. Findings show that consumers with elemental personality traits, such as openness, conscientiousness, extroversion, and material or body needs, tend to have greater needs for learning and health consciousness, care more about food value, and understand the merits of a food traceability label. Thus, opinion leaders can invite consumers with these personality traits to teach the public to pay attention to the food traceability labels on products. Traceability labels, as extrinsic information cues, can assist consumers in inferring product quality and forming quality expectations, thereby creating value for consumers.

Regarding the governments of countries in the initial stages of improving food value through food traceability systems, the results of this study show that consumers with greater needs for learning care for food value, whereas consumers with a higher level of health consciousness care about food value and possess a better perception of food traceability labels. For policy concerns, governments should require that food traceability labels disclose comprehensible information on food safety. Additionally, governments should also understand the significant costs to businesses of implementing traceability systems and offer adequate subsidies or rewards for firms willing to establish traceability systems. Furthermore, governments should educate the public regarding purchasing products with a food traceability label to guarantee their own health. Finally, government preference for traceability can be used as an indirect trade barrier to protect local industries. Regarding international trade, importers with food traceability systems can more easily enter international markets because, through providing traceability information, they show respect for public health and demonstrate their concern for safety. Thus, food traceability systems may promote the development of the global economy.

References

- Aaker, J. (1997), "Dimensions of brand personality", *Journal of Marketing Research*, Vol. 34 No. 3, pp. 347-356.
- Adams, T.B. and Mowen, J.C. (2005), "Identifying the personality characteristics of healthy eaters and exercisers: a hierarchical model approach", *Health Marketing Quarterly*, Vol. 23 No. 1, pp. 21-42.
- Bagozzi, R.P. and Yi, Y. (1988), "On the evaluation of structural equation models", *Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-95.
- Beekman, V. (2008), "Consumer rights to informed choice on the food market", *Ethical Theory and Moral Practice*, Vol. 11 No. 1, pp. 61-72.
- Betz, N.E. and Borgen, F.H. (2010), "Relationships of the big five personality domains and facets to dimensions of the healthy personality", *Journal of Career Assessment*, Vol. 18 No. 2, pp. 47-160.
- Buss, A.H. (1988), *Personality: Evolutionary Heritage and Human Distinctiveness*, Lawrence Erlbaum Associates, Hillsdale, NJ.
- Butt, S. and Philips, J.G. (2008), "Personality and self reported mobile phone use", *Computer in Human Behavior*, Vol. 24 No. 2, pp. 346-360.

- Canavari, M., Centonze, R., Hingley, M. and Spadoni, R. (2010), "Traceability as part of competitive strategy in the fruit supply chain", *British Food Journal*, Vol. 112 No. 2, pp. 171-186.
- Chamorro-Premuzi, T. and Furnham, A. (2009), "Mainly openness: the relationship between the big five personality traits and learning approaches", *Learning and Individual Differences*, Vol. 19 No. 4, pp. 524-529.
- Choe, Y.-C., Park, J., Chung, M. and Moon, J. (2009), "Effect of the food traceability system for building trust: price premium and buying behavior", *Information System Frontier*, Vol. 11, pp. 167-179.
- Chrysochou, P., Chrysochoidis, G. and Kehagia, O. (2009), "Traceability information carriers: The technology backgrounds and consumers' perceptions of the technological solutions", *Appetite*, Vol. 53 No. 3, pp. 322-331.
- Chrysochoidis, G., Karagiannaki, A., Pramataris, K. and Kehagia, O. (2009), "A cost-benefit evaluation framework of an electronic-based traceability system", *British Food Journal*, Vol. 111 No. 6, pp. 565-582.
- Dickinson, D.L. and Bailey, D. (2002), "Meat traceability: are US consumers willing to pay it?", *Journal of Agricultural and Resource Economics*, Vol. 27 No. 2, pp. 348-364.
- Dickinson, D.L. and Bailey, D. (2005), "Experimental evidence on willingness to pay for red meat traceability in the United States, Canada, the United Kingdom and Japan", *Journal of Agricultural and Applied Economics*, Vol. 37 No. 3, pp. 537-548.
- Fischer, A.R.H. and Frewer, L.J. (2008), "Food-safety practices in the domestic kitchen: Demographic, personality, and experiential determinants", *Journal of Applied Social Psychology*, Vol. 38 No. 11, pp. 2859-2884.
- Folinas, D., Manikas, I. and Manos, B. (2006), "Traceability data management for food chains", *British Food Journal*, Vol. 108 No. 8, pp. 622-633.
- Furnham, A., Mosen, J. and Ahmetoglu, G. (2009), "Typical intellectual engagement, big five personality traits, approaches to learning and cognitive ability predictors of academic performance", *British Journal of Educational Psychology*, Vol. 79 No. 4, pp. 769-782.
- Golan, E., Krissoff, B., Kuchler, F., Nelson, K., Price, G. and Calvin, L. (2003), "Traceability for food safety and quality assurance: mandatory systems miss the mark", *Journal of the Canadian Agricultural Economics Society*, No. 4, pp. 27-35, available at: http://cafri.usask.ca/j_pdfs/golan4-1.pdf
- Golan, E., Krissoff, B. and Kuchler, F. (2004), "Food traceability – one ingredient in a safe and efficient food supply", *Amber Waves*, Vol. 2 No. 2, pp. 14-21.
- Gunnar, S., Foras, E. and Fremme, K.M. (2007), "Challenges regarding implementation of electronic chain traceability", *British Food Journal*, Vol. 109 No. 10, pp. 805-818.
- Hingley, M.K. (2001), "Relationship management in the supply chain", *International Journal of Logistics Management*, Vol. 12 No. 2, pp. 57-71.
- Hingley, M.K. (2005), "Power to all our friends? Learning to live with imbalance in UK supplier-retailer relationships", *Industrial Marketing Management*, Vol. 34 No. 8, pp. 848-858.
- Hobbs, J.E. (2004), "Information asymmetry and the role of traceability systems", *Agribusiness*, Vol. 20 No. 4, pp. 397-415.
- Hwang, J. and Cranage, D. (2010), "Customer health perceptions of selected fast-food restaurants according to their nutritional knowledge and health consciousness", *Journal of Foodservice Business Research*, Vol. 13 No. 2, pp. 68-84.

- Jansen-Vullers, M.H., van Dorp, C.A. and Beulens, A.J.M. (2003), "Managing traceability information in manufacture", *International Journal of Information Management*, Vol. 23 No. 5, pp. 395-413.
- Jayanti, R.K. and Burns, A.C. (1998), "The antecedents of preventive health care behavior: an empirical study", *Academy of Marketing Science*, Vol. 26 No. 1, pp. 6-15.
- Jöresskog, K. and Sörbom, D. (1993), *LISREL 8: A Guide to the Program and Application*, SPSS, Chicago, IL.
- Kelepouris, T., Katerina, P. and Georgios, D. (2007), "RFID-enabled traceability in the food supply chain", *Industrial Management & Data Systems*, Vol. 107 No. 2, pp. 183-200.
- Kell, H.J., Rittmayer, A.D., Crook, A.E. and Motowidlo, S.J. (2010), "Situational content moderates the association between the big five personality traits and behavioral effectiveness", *Human Performance*, Vol. 23 No. 3, pp. 213-228.
- Lee, J.Y., Han, D.B., Nayga, R.M. and Lim, S.S. (2011), "Valuing traceability of imported beef in Korea: an experimental auction approach", *Australian Journal of Agricultural and Resource Economics*, Vol. 55 No. 3, pp. 360-373.
- Licata, J.W., Mowen, J.C., Harris, E.G. and Brown, T.J. (2003), "A hierarchical personality approach for identifying the traits of high-performing service personnel", *Academy of Marketing Science*, Vol. 31 No. 3, pp. 256-271.
- Lindgreen, A. (2003), "Trust as a valuable strategic variable in relationship marketing: different types of trust and their implementation", *British Food Journal*, Vol. 105 No. 6, pp. 310-328.
- Lindgreen, A. and Wynstra, F. (2005), "Value in business markets: what do we know? Where are we going?", *Industrial Marketing Management*, Vol. 34 No. 7, pp. 732-748.
- Lupien, J.R. (2005), "Food quality and safety: traceability and labeling", *Critical Reviews in Food Science and Nutrition*, Vol. 45 No. 2, pp. 119-123.
- ManiKas, I. and Manos, B. (2009), "Design of an integrated supply chain model for supporting traceability of dairy products", *International Journal of Dairy Technology*, Vol. 62 No. 1, pp. 126-138.
- Moon, W. and Balasubramanian, S.K. (2003), "Willing to pay for non-biotech foods in the US, the UK", *Journal of Consumer Affairs*, Vol. 37 No. 2, pp. 317-339.
- Mooradian, T.A. (1996), "Personality and ad-evoked feelings: the case for extraversion and neuroticism", *Academy of Marketing Science*, Vol. 24 No. 2, pp. 99-110.
- Mowen, J.C. (2000), *The 3M Model of Motivation and Personality: Theory and Empirical Applications to Consumer Behavior*, Kluwer Academic, Boston, MA.
- Mowen, J.C. (2004), "Exploring the trait of competitiveness and its consumer behavior consequences", *Journal of Consumer Psychology*, Vol. 14 Nos 1-2, pp. 52-63.
- Mowen, J.C. and Harris, E.G. (2003), "The MDPS method of message theme development: a new tool for managers", *Journal of Consumer Marketing*, Vol. 20 No. 5, pp. 428-445.
- Pouliot, S. (2011), "Market evidence of packer willing to pay for traceability", *American Journal of Agricultural Economics*, Vol. 93 No. 3, pp. 735-751.
- Sapp, S.G. and Bird, S.R. (2003), "The effects of social trust on consumer perceptions of food safety", *Social Behavior and Personality: An International Journal*, Vol. 31 No. 4, pp. 413-422.
- Schulz, L.L. and Tonsor, G.T. (2010), "Cow-calf producer perceptions regarding individual animal traceability", *Journal of Agricultural and Applied Economics*, Vol. 42 No. 4, pp. 659-677.
- Stair, R.M. (1992), *Principles of Information Systems: A Managerial Approach*, Boyd and Fraser Publishing, Boston, MA.

- Swickert, R.J., Hittner, J.B. and Foster, A. (2010), "Big five traits interact to predict perceived social support", *Personality and Individual Differences*, Vol. 48 No. 6, pp. 736-741.
- Tompkins, J. and Ang, D. (1999), "What are your greatest challenges related to supply chain performance measurement?", *IIE Solutions*, Vol. 31 No. 6, p. 66.
- Van Rijswijk, W. and Frewer, L.J. (2008), "Consumers' perceptions of food quality and safety and their relation to traceability", *British Food Journal*, Vol. 110 No. 10, pp. 1034-1046.
- Van Rijswijk, W., Frewer, L.J., Menozzi, D. and Faioli, G. (2008), "Consumer perceptions of traceability: a cross-national comparison of the associated benefits", *Food Quality and Preference*, Vol. 19 No. 5, pp. 452-464.
- Wansink, B. and Park, S.B. (2000), "Methods and measures that profile heavy users", *Journal of Advertising Research*, Vol. 40 No. 4, pp. 61-72.
- Wu, L., Xu, L. and Gao, J. (2011), "The acceptability of certified traceable food among Chinese consumers", *British Food Journal*, Vol. 113 No. 4, pp. 519-534.
- Yoo, B. and Lee, S-H. (2009), "Buy genuine luxury fashion products or counterfeits?", *Advances in Consumer Research – North American Conference Proceedings*, Vol. 36, pp. 280-286.

Appendix

Table AI lists the measurements of each construct. All indicators are measured using a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Food traceability system

Construct	Indicators
Intention to purchase products with a food traceability label	I am more willing to purchase products with a food traceability label I am more willing to purchase products with a food traceability label, even if the product is more expensive I am more willing to shop at a store that sells products with a food traceability label
Care of food value	I care about the production location of food ingredients I care about food supplements I care about the production environment of food I care about the manufacture date and expiration date of food I care about food testing information I care about the transportation process of food I care about the storage environment of food
Perception of food traceability labels	They provide correct information on food safety They provide complete information on food safety They are helpful for acquiring food safety information They provide reliable information on food safety They provide food safety information I am interested in They provide understandable information on food safety They provide immediate information on food safety They provide proof of food safety
Needs for learning	I like to learn new things more than others do I like to create new ideas Information is an important resource for me
Health consciousness	I try to prevent health problems before I feel symptoms I am concerned about health hazards and try to take action to prevent them I try to protect myself against health hazards I hear about I do not worry about health hazards until they become a problem for me or someone close to me There are numerous things that can hurt you, but I am not going to worry about them I frequently worry about health hazards I hear of, but do not do anything about them I do not take action against health hazards I hear about until I know I have a problem I prefer enjoying life more than ensuring that I am not exposing myself to a health hazard
Openness	I enjoy thinking about theories and abstract concepts. I find discussing philosophy is boring (reverse coding). I enjoy solving problems and answering riddles. I am curious and deliberate on things

1379*(continued)***Table AI.**

Construct	Indicators
Conscientiousness	I am usually able to control new information and make precise decisions. I am a conscientious and meticulous person. I always try my best to achieve goals. I ruminate over a problem before making a decision
Extroversion	People think I am a passionate and friendly person. I make friends easily and smile at others. I enjoy places that are full of people. I would not consider myself vivacious (reverse coding)
Neuroticism	I seldom feel scared and worried (reverse coding). I frequently feel nervous and restless. I frequently feel sad or upset (reverse coding). I occasionally feel hopeless
Body needs	I focus on my body and how it feels. I devote time each day to improving my body. I feel that making my body look good is important. I work hard to keep my body healthy
Material needs	I enjoy purchasing expensive things. I enjoy owning luxurious things. Acquiring valuable things is important to me. I enjoy owning nice things more than most people do

Table A1.

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