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Research Article
Thai Consumer Organic Food-Related Lifestyle (FRL), Attitude and Perceived Value Segmentation: A Discriminant Analysis Approach

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Abstract

Background and Objective: Thailand is becoming a key participant in the global production of organic food products. As such, the objectives of this study were to examine the antecedents and consequences of Thai consumer attitudes toward local organic food products and to segment these consumers using their food-related lifestyle (FRL) patterns, attitudes and perceived values. **Materials and Methods:** This research employed quantitative methods and use of a 72 item questionnaire to collect data from 400 Thai organic food consumers in the first half of 2018. SPSS software version 21 was used to conduct a cluster analysis and discriminant analysis and then analyze the frequencies, percentage, mean and standard deviation. **Results:** From the segmentation into three organic food consumer groups, which included sensory organic eaters (Group 1), organic eaters (Group 2) and unhealthy conventional organic eaters (Group 3), it was determined that an organic food product's quality aspect had the greatest importance across all three groups. However, a consumer's attitude concerning their emotional value was judged to have the least importance across all three groups when purchasing organic food products (OFP). **Conclusion:** From the analysis of the three groups of Thai organic food consumers, the sensory organic eaters (SOEs = Group 1) and the organic eaters (Oes = Group 2) were highly sensitive and had nearly the same attributes to each other. Perceived value, attitude and food-related lifestyle were also shown to be helpful in separating the unhealthy conventional organic eaters (UCOEs = Group 3) for marketing purposes. Finally, consumers of organic food products in all three groups placed a very high value on sanitary and phytosanitary conditions.

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

In the 2018 'World of Organic Agriculture (WOA)' study, it was reported that there were over 2.7 million producers of organic products worldwide, which is a 12.8% increase[1] over 2015. In the 178 countries which are reported to be involved in organic production, over 57.8 million ha were being used for farmland, which represented a 15% increase over 2015.

Furthermore, the WOA study indicated that in 2016, organic products sold globally were valued at $US90 billion and that areas of cultivation for organic products had reached[1] 97.5 million ha.

Although Oceania is also a huge region, in fact Australia is home to over 99% of the organic land used within it (Fig. 1). In 2016, there were 27,000 Australian organic producers, which used 27.3 million ha of land in their production[1]. Even though China is massive in both landmass and population, only 2.3 million ha were being used for organic production in 2016. However, this was a 42% increase over 2015 statistics[1,2]. India, however, has the most organic producers globally[3] with 835,000.

Thailand in Southeast Asia has also been influenced by the global expansion of the organic food market. As reported elsewhere, media and advertising have a significant impact on a consumer's perception of organic related products. Further research from Thailand has stated that in order to enlarge the organic market, one must understand consumers' preferences for organic products and the premium they will pay for them[4,5].

As global organic product markets rapidly expand, research is showing that organic food consumption growth is related to the lack of harmful and non-toxic substances within the products[6-7]. Also important, is the products should contain vitamins, minerals and vegetable nutrients expected of such products. Studies have also shown that consumers recognize that organic foods are safe, valuable and beneficial and as such are willing to pay more[4,7,8].

In Asia, studies have suggested that consumer concerns about food safety and quality have been the main motivators for consumer organic product purchases[9]. Chinese market expansion in the past decade is partly because of the high incidence of food scares, with the melamine scandal involving dairy products and infant formula adulterated with the industrial chemical, having the most impact. China now has the largest market for organic infant formula products in the world, worth almost $USD 200 million.

Organic products are also a niche market, with research indicating that Thai consumers are attracted most to organic vegetables, fruits and rice, respectively[4,10]. As a main purpose of consumption is to keep healthy, one of the first factors to consider when buying organic products is the quality of the products[11]. This is consistent with 2015 research in which Thai

Fig. 1: Global organic farmland-2016[1]

Table1: Nomenclature research variables' supporting theory

Nomenclature	Research variables	Theory
FRL	**Food-related-lifestyle**	
WS	Ways of shopping	Bredahl and Grunert[14] and Fang and Lee[15] Anderson and Golden[18], Brunso *et al*.[19] and Wycherley[20]
QA	Quality aspects	
CM	Cooking methods	
CS	Consumption situations	
PM	Purchasing motives	
A	**Attitude**	
H	Healthy	Ajzen[12], Brunso *et al*.[19], Chen[21], Bagozzi and Dholakia[22] and Hyebin *et al*.[23]
SP	Sanitary and Phytosanitary	
E	Environment	
PV	**Perceived value**	
FV	Functional	Laros and Steenkamp[16], Rokeach[24], Kim *et al*.[25], Dhar *et al*.[26] and Zeithaml[27]
EV	Epistemic	
EMV	Emotional	
SV	Social	
EC	Economic	

organic food purchasers paid a premium price of 88, 51 and 51% for organic Chinese kale, organic jasmine rice and organic pork, respectively[4].

Attitude is also an important consideration in the analysis of consumer behavior[12]. Another is value perception as it helps researchers determine the extent of their consumption more effectively[13].

Food-related lifestyle (FRL) is also used as a tool to measure attitudes toward food consumption[14]. The work of the FRL tool is done by incorporating several related factors into smaller groups and for clarity in behaviors in different groups. It also relates a set of products to a set of values[14] and helps keeps responses focused on a unique target audience[15]. With this approach, FRL tools are popular in applying consumer attitudes and behaviors that reflect the individual's daily lives. European developed FRL for research concerning Chinese food culture consumers[15] and determined there were four distinct segments. Food segmentation is also determined to be based on FRL, with food consumers grouped in a variety of ways.

Similarly, perceived value (PV) is a form of expression of satisfaction and shared interest that can be categorized[13]. The PV of a customer's food products leads to purchasing behavior and food consumption. Also, basic emotions provide more information about the feelings of the consumer over and above positive and negative affect[16]. This includes the way a food stimulates the feelings or interests of a customer to choose each type of food depending on their lifestyle[16]. Furthermore, in Scandinavian research which used FRL as a research instrument as it is geared towards market surveillance in the food industry. It is also rooted in the cognitive approach to explain human behaviour and the main assertion is that life style is how consumers mentally link products to the attainment of life values[17].

For this reason, the objective of this study was to observe the lifestyle patterns associated with food, including attitude and perceived value. Furthermore, the study sought to segment Thai organic food consumers (OFCs) to better understand their attitudes and perceived values concerning organic food products. The variables in this study developed from the literature and theory (Table 1), focused on food-related-lifestyle, attitude and perceived value by Thai OFCs.

MATERIALS AND METHODS

Measurements: This study's questionnaire was divided into six parts, which contained a total of 72-items. A Likert type agreement scale was used, which ranged from 1 (strongly disagree) to 7 (strongly agree). Table 1 showed the latent and observed variables along with their supporting theory.

Sampling and data collection: The study examined Thai OFCs 15 years or older for a period of 6 months in 2018. The sample size was calculated by use of the Cochran formula[28] and found that an appropriate sample for the study with an error reserve of 4% to be 384.16 individuals. Therefore, a target sample size of 400 Thai OFCs was determined. The sampling method used multi-stage, random sampling.

Statistical analysis: Cluster analysis and discriminant analysis were analyzed by use of the Statistical Package for the Social Sciences (SPSS) software version 21. Combined cluster and discriminant analysis is a method of which idea is to compare random grouping with preconceived grouping[29]. From this, the frequencies, percentage, the mean and standard deviations (SD) were calculated[30].

Table 2: Organic food consumer opinion scale

Level	Interpretation	Mean range
7	I strongly agree	6.17-7.00
6	I agree	5.31-6.16
5	I nearly agree	4.45-5.30
4	I have a moderate level of agreement	3.59-4.44
3	I agree somewhat	2.73-3.58
2	I disagree	1.87-2.72
1	I strongly disagree	1.00-1.86

Table 3: Organic food consumer characteristics

Consumer characteristics	Total	Percentage
Gender		
Female	244	61.0
Male	156	39.0
Total	400	100.0
Thailand region/area		
Central region excluding Bangkok	119	29.8
Northeast Thailand	107	26.7
Northern Thailand	68	17.0
Bangkok metropolitan area	54	13.5
Southern Thailand	52	17.0
Total	400	100.0
Religion		
Buddhist	364	91.0
Other	36	9.0
Total	400	100.0
Relationship status		
Single	232	58.0
Married	131	32.8
Divorced/Widowed	37	9.2
Total	400	100.0
Education		
Lower than or equal to high school	90	22.5
Graduated with B.A/B.S. degree	239	59.8
Postgraduate degree	71	17.7
Total	400	100.0
Profession		
Government officials and employees of state enterprise	125	31.3
Private company employee	115	28.7
Entrepreneur	85	21.3
Student or other	75	17.7
Total	400	100.0

Table 4: Organic food consumption behavior

Consumer characteristics	Total	Percentage
Preferred organic food product		
Vegetables	175	43.8
Meat	81	20.3
Rice	70	17.5
Milk	49	12.3
Egg	25	6.3
Total	400	100.0
Frequency of purchase		
Less than 1 time/week	79	19.8
1-2 times/week	140	35.0
2-3 times/week	113	28.2
4 or more times/week	68	17.0
Total	400	100.0
Main purpose of purchasing organic food products		
For health	115	28.7
High nutritional value	87	21.8
Security	84	21.0
Taste	37	9.3
Easy to buy	28	7.0
Price	22	5.5
Easy to eat	20	5.0
Environmental protection and other	7	1.8
Total	400	100.0
Places where organic food products are purchased		
Major supermarkets	157	39.8
Department store markets	93	23.3
Other places such as green and farmer markets.	72	18.0
Health food shops	29	7.2
Online shops	27	6.8
Organic food home delivery groups	22	5.5
Total	400	100.0
Confidence in buying organic food (More than one response possible)		
Organic certification	226	36.0
Organic producer	155	24.7
Distribution channels	138	22.0
Product	105	16.7
Not convinced about organic food safety	3	0.5
Total	627	100.0

Research tool: For queries that were designed to determine the value of the item comments, a 7-level Likert scale is often used[31], with level 1 representing an answer which 'I strongly disagree' with the item's statement, to level 7, which was interpreted as an item statement in which the passenger 'I strongly agree' (Table 2).

Therefore, Table 2 showed the study's scale and values used in the organic food products questionnaire which contained a total of 72 items. Part 1 consisted of Table 3, six items detailing the personal characteristics of each consumer, along with Table 4' results of the five items detailing the respondent's organic food consumption behavior (11 total). The remainder of the survey consisted of three sections concerning the consumer's organic food related lifestyles (FRL = 24 items), attitude (A = 12 items) and perceived value (PV = 25 items).

Cluster analysis: The study used cluster analysis to group similar objects in such a way that objects in the same group (a cluster) are more similar to each other than to those in other groups[32]. K-means cluster analysis is a method of cluster analysis which aims to partition observations into k clusters, in which each observation belongs to the cluster with the nearest mean[33].

Discriminant analysis: Discriminant analysis is a collection of multivariate techniques that use statistical methods to characterize or separate two or more classes of objects or

events[34]. From the cluster method, the researchers conducted discriminant analysis starting with Box's M test, which is one of the commonly used methods to test homogeneity of variance-covariance matrices of groups[35].

RESULTS

Target group's characteristics: From the respondent's personal information contained in the 72 item questionnaire collected from 400 Thai organic food consumers in the first half of 2018, it was determined that the majority were female (61%) and single (58%) (Table 3). It was also interesting to note that the high level of consumer education as 59.8% had a Bachelor's degree, while an additional 17.7% had a Postgraduate degree.

Organic food consumption behavior: Furthermore, results from the 400 Thai organic food consumers showed that 43.8% of the Thai OFCs preferred vegetables (Table 4). Additionally, 35% of the respondents indicated that they ate organic food 1-2 times per week, with 28.7% reporting they ate organic foods to stay healthy. Additionally, 39.8% reported they bought organic food from the supermarket. Finally, 36.0% trusted organic food if some form of guarantee label was provided on the packaging.

Food related lifestyle (FRL), attitude and perceived value of organic food: Reliability (Cronbach's alpha), means and standard deviations of the 5-items from food-related lifestyles were used in the analysis. Ranked in importance, results showed that consumers felt that FRL quality aspects were most important at level 6's 'I agree'. This was followed by cooking methods. A consumers way of shopping, purchasing motives and finally, consumption situations.

Consumer's attitude (A) was evaluated using three variables. Ranked in importance, these were healthy, the environment and sanitary and phytosanitary.

Perceived value (PV) consisted of five items. Ranked in importance, these were the organic food product's functional value, emotional value, epistemic value, economic value and social value.

From the results presented in Table 5, it was determined that the mean differences in separation were substantial, with statistical significance being less than 0.05. Purchasing motives (PM) was found to have the highest value (F = 233.146) followed by ways of shopping (WS) (F = 223.127) and social value (F = 210.221). Furthermore, the organic food consumer respondents held a positive opinion concerning FRL consumption behavior. Concerning the consumer's attitude (A) and perceived value (PV), both were viewed as positive elements.

Cluster analysis results: The analysis classified Thai OFCs by using K-means techniques for more than 200 individuals by more iteration and every iterations mix case to calculate average. This study found the average to be stable at 11 iterations. Furthermore, the results of hierarchical cluster analysis suggested that the number of groups was three.

Discriminant analysis results: The Fig. 2 showed the group mean differences and the conical discriminant linear functions. Classification results of the individual contribution of the

Table 5: FRL, A and PV analysis results of Thai organic food consumers (n = 400)

Variables	Total (n = 400)					Group 1 (n = 162)		Group 2 (n = 156)		Group 3 (n = 82)	
	Mean	SD	F-value	Wilks'	Sig.	Mean	SD	Mean	SD	Mean	SD
Food-related-lifestyle											
Ways of shopping (WS)	5.26	1.017	223.127	0.471	0.000	5.05	0.731	6.07	0.562	4.11	0.853
Quality aspects (QA)	5.45	0.902	135.751	0.594	0.000	5.25	0.682	6.10	0.524	4.60	0.966
Cooking methods (CM)	5.28	0.981	172.499	0.535	0.000	5.13	0.801	5.99	0.593	4.20	0.765
Consumption situations (CS)	4.74	1.286	141.297	0.584	0.000	4.63	1.018	5.59	0.950	3.34	0.985
Purchasing motives (PM)	5.22	1.025	233.146	0.460	0.000	5.14	0.711	5.99	0.626	3.94	0.791
Attitude											
Healthy (H)	5.98	0.773	62.897	0.759	0.000	5.80	0.740	6.42	0.535	5.47	0.772
Sanitary and phytosanitary (SP)	5.69	0.806	133.541	0.598	0.000	5.52	0.664	6.27	0.551	4.93	0.675
Environment (E)	5.71	0.851	98.976	0.667	0.000	5.55	0.766	6.26	0.589	4.97	0.743
Perceived value											
Functional value (FV)	5.74	0.847	122.444	0.618	0.000	5.56	0.673	6.34	0.525	4.97	0.870
Epistemic value (EPV)	5.25	1.100	186.020	0.516	0.000	5.14	0.776	6.04	0.678	3.97	1.002
Emotional value (EMV)	5.48	0.928	187.878	0.514	0.000	5.42	0.641	6.12	0.593	4.36	0.829
Social value (SV)	5.04	1.158	210.221	0.486	0.000	5.01	0.805	5.84	0.725	3.58	0.955
Economic value (ECV)	5.19	1.102	205.387	0.491	0.000	5.01	0.831	6.34	0.525	3.93	0.866

Table 6: Structure matrix and classification function coefficients

	Structure matrix		Classification function coefficients		
	Fun. 1	Fun. 2	G1	G2	G3
Food-related-lifestyle (FRL)					
WS	0.488*	0.239	3.70	4.72	2.75
QA	0.378*	0.356	6.60	7.61	6.02
CM	0.430*	0.060	1.83	2.18	1.30
CS	0.388*	-0.154	3.38	3.92	2.95
PM	0.498*	-0.245	5.68	6.70	3.95
Attitude (A)					
H	0.252	0.447*	4.01	4.01	4.74
SP	0.375*	0.352	6.14	7.16	5.21
E	0.324*	0.251	4.24	4.81	3.53
Perceived value (PV)					
FV	0.359	0.363*	4.95	5.72	4.72
EV	0.446*	-0.133	3.66	4.57	2.73
EMV	0.447*	-0.301	2.43	2.43	1.21
SV	0.470	-0.471*	5.05	5.43	3.75
EC	0.469*	0.100	3.03	4.17	2.47
(Con.)			-145.48	-194.69	-102.21

*Largest absolute correlation between each variable and any discriminant function. Con. = Constant, WS: Ways of shopping, QA: Quality aspects, CM: Cooking methods, CS: Consumption situations, H: Healthy, SP: Sanitary and phytosanitary, E: Environment, FV: Functional value, EPV: Epistemic value, EMV: Emotional value, SV: Social value, ECV: Economic value
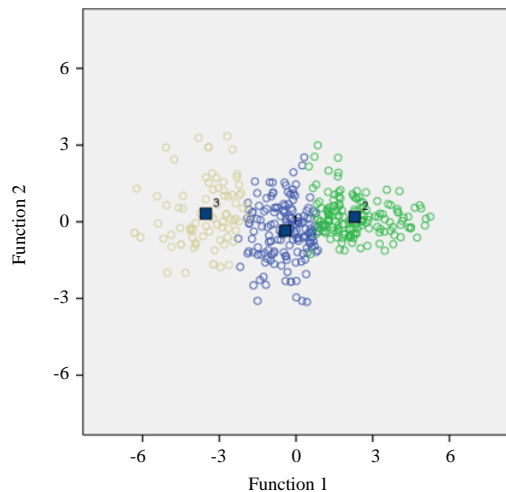

Fig. 2: Canonical discriminant functions, Blue: Group/cluster 1, Green: Group/cluster 2 and Yellow: Group/cluster 3
Black squares indicate group center mark

variables to the discriminant functions and their classification was divided into three groups or clusters of Thai OFCs. In Group 1, 159 of 162 respondents were classified as sensory organic eaters. In Group 2, 150 out of the 159 respondents were classified as organic eaters. In Group 3, 81 out of the 82 respondents were classified as unhealthy conventional organic eaters.

Thai organic consumer prediction model: Results from the discriminant analysis revealed that two canonical discriminant linear functions were significant at p<0.001. Furthermore, in Table 6, the structure matrix showed purchasing motives (PM) is meaningful for choosing organic food, which has the strongest correlation with Function 1. As this was compatible with this function, it was labeled as a FRL element.

Furthermore, under Function 2's (Fun. 2) attitude (A), consumers voiced their strong opinions that consuming organic food is healthy. By using the classification function coefficients shown in Table 6, three classification scores were calculated for creating the grouping.

DISCUSSION

From the review of the literature and theory, the study on Thai OFCs determined that there were three classifications of organic food consumers (OFCs). These were sensory organic eaters (SOEs = Group 1), organic eaters (Oes = Group 2) and unhealthy conventional organic eaters (UCOEs = Group 3).

This was consistent with research from Nie and Zepeda[36] which stated that consumer segmentation is helpful in understanding the attitudes and motivations of specific consumers, rather than learning how an average consumer thinks and behaves. Furthermore, Nie and Zepada's[36] research segmented food consumers based on their lifestyle, which is a mixture of habits, conventional ways of doing things and reasoned behavior, which included four consumer segments labeled as practical consumer, food enthusiast, indifferent consumer and convenience seeker.

Moreover, the results also reflect the importance of a consumer's focus on environmental and health issues which have become a fundamental requirement within the organic product sector[11,37]. The results are also consistent with Uimonen[38], which also examined Finnish food consumers and discussed the adventurous, careless, conservative, rational, snacking and the uninvolved consumers.

The popular iterative partitioning method k-means clustering method was also used in this study, which was adopted from Hartigan and Wong[39]. Also, from the discriminant analysis and classification scores from the three consumer groups, the following determinations were made.

In all three groups of organic food consumers, the quality aspects (QA) was judged to be most important. These findings were also consistent with Uimonen's Finnish consumer food study in which quality was consistently voiced as a main concern in food selection[38].

It was also interesting to discover that consumers of organic food products in all three groups placed a very high value on sanitary and phytosanitary (SP) conditions. This is supported by other global studies on organic food products value coming from safe and sanitary assurance[4-9]. However, in all three groups, a consumer's emotional value (EMV) concerning the purchase and consumption of organic foods was determined to be the lowest of the items evaluated.

CONCLUSION

The results of this study demonstrated the possibility of organic consumer segmentation through attitude, perceived value and food-related-lifestyle. Furthermore, the study showed that personality and social influence can drive consumption choice through lifestyle, while attitudes and perceived value determine the benefits (or lack thereof) of organic food products.

SIGNIFICANCE STATEMENT

This study discovered that organic food products are increasingly becoming a food resource which Asian and Thai food consumers are both looking for and willing to pay higher prices for. Specifically, research has identified that both Thai and Asian consumers are looking for products which are clean and free of contaminants, which has become the outcome of high-profile incidents related to food contamination. This study therefore will help other researchers uncover and identify critical areas for follow-on research that previous scholars did not explore. Thus, new theories on what importance is placed on organic food consumption may be arrived at.

REFERENCES

1. FIBL. and IFOAM., 2018. The world of organic agriculture: Statistics and emerging trends 2018. https://shop.fibl.org/CHen/mwdownloads/download/link/id/1093/?ref=1
2. Organic Trade Association, 2018. Organic foods: Niche markets. https://tinyurl.com/yc7ynocs
3. FIBL., 2018. A booming organic sector: More farmers, more land and a growing market. https://tinyurl.com/yb97puts
4. Sriwaranun, Y., C. Gan, M. Lee and D.A. Cohen, 2015. Consumers' willingness to pay for organic products in Thailand. Int. J. Soc. Econ., 42: 480-510.
5. Panpluem, P. and M. Putsakum, 2015. Consumer behavior in buying organic product: A case study of consumer in the bangkok metropolits and vicinity. World Acad. Sci., Eng. Technol. Int. J. Agric. Biosyst. Eng., Vol. 9.
6. Heaton, S., 2002. Assessing organic food quality: Is it better for you? Proceedings of the UK Organic Research 2002 Conference, May 2, 2006, Organic Centre Wales, Institute of Rural Studies, University of Wales Aberystwyth, pp: 55-60.
7. Dimitri, C. and N.J. Richman, 2000. Organic foods: Niche marketers venture into the mainstream. Agric. Outlook, 272: 11-14.
8. Hutchins, R.K. and L.A. Greenhalgh, 1995. Organic confusion: Sustaining competitive advantage. Nutr. Food Sci., 95: 11-14.
9. Ecovia Intelligence, 2017. Predictions for sustainable foods in 2017. Ecovia Intelligence. http://www.ecoviaint.com/r0401/
10. Slamet, A.S., A. Nakayasu and H. Bai, 2016. The determinants of organic vegetable purchasing in Jabodetabek region, Indonesia. Foods, Vol. 5. 10.3390/foods5040085.
11. Gil, J.M., A. Gracia and M. Sanchez, 2000. Market segmentation and willingness to pay for organic products in Spain. Int. Food Agribus. Manage. Rev., 3: 207-226.
12. Ajzen, I., 1985. From Intentions to Actions: A Theory of Planned Behavior. In: Action Control: From Cognition to Behavior, Kuhl, J. and J. Beckmann (Eds.)., Springer-Verlag, New York, USA., ISBN: 978-3-642-69748-7, pp: 11-39.
13. Verplanken, B. and R.W. Holland, 2002. Motivated decision making: Effects of activation and self-centrality of values on choices and behavior. J. Personality Soc. Psychol., 82: 434-447.
14. Bredahl, L. and K.G. Grunert, 1997. Food-related life-style trends in Germany. MAPP Working Paper No. 50. The Aarhus School of Business, 1993-1996, Aarhus.
15. Fang, C.H. and H.J. Lee, 2009. Food-related lifestyle segments in taiwan: Application of the food-related lifestyle instrument. Am. J. Applied Sci., 6: 2036-2042.
16. Laros, F.J. and J.B.E. Steenkamp, 2005. Emotions in consumer behavior: A hierarchical approach. J. Bus. Res., 58: 1437-1445.
17. Grunert, K.G., K. Brunso and S. Bisp, 1993. Food-related lifestyle: Development of a cross-culturally valid instrument for market surveillance. MAPP Working Paper No. 12.
18. Anderson, Jr., W.T. and L.L. Golden, 1984. Lifestyle and psychographics: A critical review and recommendation. Adv. Consum. Res., 11: 405-411.

19. Brunso, K., T.A. Fjord and K.G. Grunert, 2002. Consumers' food choice and quality perception. MAPP Working paper no. 77. The Aarhus School of Business, MAPP Centre, Aarhus, http://pure.au.dk/portal/files/32302886/wp77.pdf

20. Wycherley, A., M. McCarthy and C. Cowan, 2008. Speciality food orientation of Food Related Lifestyle (FRL) segments in Great Britain. Food Qual. Preference, 19: 498-510.

21. Chen, M.F., 2009. Food-related lifestyle and trust-in-food-safety typology in Taiwan. Proceedings of the International Conference on Pacific Rim Management 19th Annual Meeting, July 30-August 1, 2009, San Francisco, California, USA.

22. Bagozzi, R.P. and U.M. Dholakia, 2002. Intentional social action in virtual communities. J. Interact. Marketing, 16: 2-21.

23. Hyebin, J., L. Seoyoun and C. Younchan, 2002. Home meal replacement market segmentation a food-related lifestyle. Proceedings of The Agricultural and Applied Economics Association's 2014 AAEA Annual Meeting, July 27-29, 2014, Minneapolis.

24. Rokeach, M., 1973. The Nature of Human Values. Free Press, New York, USA., ISBN-13: 978-0029267509, Pages: 438.

25. Kim, H.W., Y. Xu and S. Gupta, 2012. Which is more important in Internet shopping, perceived price or trust? Elect. Commerce Res. Applic., 11: 241-252.

26. Dhar, U., S. Parashar and T. Tiwari, 2008. Profession and dietary habits as determinants of perceived and expected values. J. Hum. Values, 14: 181-190.

27. Zeithaml, V.A., 1988. Consumer perceptions of price, quality and value: A means-end model and synthesis of evidence. J. Market., 52: 2-22.

28. Cochran, W.G., 1977. Sampling Techniques. 3rd Edn., Willey Eastern Ltd., New Delhi, India, ISBN: 0852261217, Pages: 428.

29. Melnykov, V., W.C. Chen and R. Maitra, 2012. MixSim: An R package for simulating data to study performance of clustering algorithms. J. Stat. Software, Vol. 51. 10.18637/jss.v051.i12.

30. Landau, S. and B.S. Everitt, 2000. Handbook of Statistical Analyses Using SPSS. Chapman and Hall/CRC Press, Boca Raton, Florida.

31. Matell, M.S. and J. Jacoby, 1972. Is there an optimal number of alternatives for Likert-scale items? Effects of testing time and scale properties. J. Applied Psychol., 56: 506-509.

32. Kaur, H. and J. Singh, 2015. Survey of cluster analysis and its various aspects. Int. J. Comput. Sci. Mobile Comput., 42: 353-363.

33. Yadav, A. and S. Dhingra, 2016. A review on K-means clustering technique. Int. J. Latest Res. Sci. Technol., 5: 13-16.

34. Jang, D.H., C.M. Anderson-Cook and Y. Kim, 2015. Graphical methods for the sensitivity analysis in discriminant analysis. Commun. Stat. Applic. Meth., 22: 475-485.

35. Nazman, E. and S. Erbas, 2017. Evaluation of group homogeneity in gaussianmixturemodels using combined cluster and discriminant analysis. Sinop Univ. J. Natural Sci., 2: 121-132.

36. Nie, C. and L. Zepeda, 2011. Lifestyle segmentation of US food shoppers to examine organic and local food consumption. Appetite, 57: 28-37.

37. Cheng, S., T. Lam and C.H. Hsu, 2006. Negative word-of-mouth communication intention: An application of the theory of planned behavior. J. Hospitality Tourism Res., 30: 95-116.

38. Uimonen, S., 2011. The effect of food-related lifestyle on the choices of consumers of five food products. Ph.D. Thesis, Department of Economics and Management, Faculty of Agriculture and Forestry, University of Helsinki.

39. Hartigan, J.A. and M.A. Wong, 1979. Algorithm AS 136: A K-means clustering algorithm. J. R. Stat. Soc. Ser. C. Applied Stat., 28: 100-108.