


THE EFFECTS OF ECONOMIC FACTORS AND LIFESTYLE ON THE HEALTHY FOOD CONSUMPTION OF THE ELDERLY IN NONG KHAI MUNICIPALITY, THAILAND

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 28 November 2022</p> <p>Accepted 20 February 2023</p>	<p>Objective: This research aimed to study the effects of economic factors and lifestyle on the marketing mix of healthy food consumption.</p> <p>Theoretical framework: The analysis of the economic factors and that affected the 7Ps in terms of worthiness and purchase convenience, e.g., marketing channels, places, presentation, services, and product delivery.</p>
<p>Keywords:</p> <p>Elderly; Economy; Lifestyle; Healthy Food; Nong Khai Municipality.</p>	<p>Method: using a structured equation model (SEM). The data were collected from 398 volunteers aged over 60 years by convenience sampling in Nong Khai Municipality, Thailand.</p> <p>Results and conclusion: that most volunteers were aged between 60-69 years, married, graduated from the primary education level, were housewives and pensioners, and earned 10,000 Thai Baht per month on average. Economic factors and lifestyle affected all 7Ps in the marketing mix of the healthy food consumption of the elderly in Nong Khai Municipality. The economic factors had more effects than lifestyle.</p>
	<p>Implications of the research: Entrepreneurs could use the data from this research to develop healthy products for the elderly. Furthermore, the government could utilize the data of the consumer behavior as an economic driver to motivate the needs of the elderly for health promotion, self-care, and/or for providing welfare policies to the elderly.</p> <p>Originality/value: This study provides an important impact on improving the alternative food development for the elderly in Nong Khai Province of Thailand.</p>
<p>Doi: https://doi.org/10.26668/businessreview/2023.v8i2.587</p>	

OS EFEITOS DOS FATORES ECONÔMICOS E DO ESTILO DE VIDA NO CONSUMO DE ALIMENTOS SAUDÁVEIS DOS IDOSOS NO MUNICÍPIO DE NONG KHAI, TAILÂNDIA

RESUMO

Objetivo: Esta pesquisa teve como objetivo estudar os efeitos dos fatores econômicos e do estilo de vida no mix de marketing do consumo de alimentos saudáveis.

Estrutura teórica: A análise dos fatores econômicos e que afetaram os 7Ps em termos de valor e conveniência de compra, por exemplo, canais de marketing, locais, apresentação, serviços e entrega de produtos.

Método: utilizando um modelo de equação estruturada (SEM). Os dados foram coletados de 398 voluntários com mais de 60 anos de idade por amostragem de conveniência no Município de Nong Khai, Tailândia.

Resultados e conclusão: a maioria dos voluntários tinha entre 60 e 69 anos de idade, casados, formados no nível de educação primária, eram donas de casa e pensionistas, e ganhavam 10.000 Thai Baht por mês, em média.

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Fatores econômicos e estilo de vida afetaram todos os 7Ps no mix de marketing do consumo de alimentos saudáveis dos idosos no Município de Nong Khai. Os fatores econômicos tiveram mais efeitos do que o estilo de vida.

Implicações da pesquisa: Os empresários puderam usar os dados desta pesquisa para desenvolver produtos saudáveis para os idosos. Além disso, o governo poderia utilizar os dados do comportamento do consumidor como um motor econômico para motivar as necessidades dos idosos para a promoção da saúde, autocuidado e/ou para fornecer políticas de bem-estar para os idosos.

Originalidade/valor: Este estudo proporciona um impacto importante na melhoria do desenvolvimento alimentar alternativo para os idosos na província de Nong Khai, na Tailândia.

Palavras-chave: Idosos, Economia, Estilo de Vida, Alimentação Saudável, Município de Nong Khai.

EFFECTOS DE LOS FACTORES ECONÓMICOS Y DEL ESTILO DE VIDA EN EL CONSUMO DE ALIMENTOS SALUDABLES DE LOS ANCIANOS DEL MUNICIPIO DE NONG KHAI (TAILANDIA)

RESUMEN

Objetivo: El objetivo de esta investigación es estudiar los efectos de los factores económicos y el estilo de vida en el marketing mix del consumo de alimentos saludables.

Marco teórico: El análisis de los factores económicos y que afectó a las 7Ps en términos de valor y conveniencia de compra, por ejemplo, los canales de comercialización, lugares, presentación, servicios, y la entrega del producto.

Método: mediante un modelo de ecuaciones estructuradas (SEM). Los datos se recogieron de 398 voluntarios mayores de 60 años mediante muestreo de conveniencia en el municipio de Nong Khai (Tailandia).

Resultados y conclusión: la mayoría de los voluntarios tenían entre 60 y 69 años, estaban casados, habían cursado estudios primarios, eran amas de casa y pensionistas, y ganaban una media de 10.000 baht tailandeses al mes. Los factores económicos y el estilo de vida afectaron a todas las 7P de la combinación de comercialización del consumo de alimentos saludables de las personas mayores en el municipio de Nong Khai. Los factores económicos tuvieron más efectos que el estilo de vida.

Implicaciones de la investigación: Los empresarios podrían utilizar los datos de esta investigación para desarrollar productos saludables para las personas mayores. Además, el gobierno podría utilizar los datos del comportamiento del consumidor como motor económico para motivar las necesidades de los ancianos en la promoción de la salud, el autocuidado y/o para proporcionar políticas de bienestar a los ancianos.

Originalidad/valor: Este estudio tiene un impacto importante en la mejora del desarrollo de alimentos alternativos para las personas mayores en la provincia tailandesa de Nong Khai.

Palabras clave: Ancianos, Economía, Estilo de Vida, Alimentación Sana, Municipio de Nong Khai.

INTRODUCTION

The number of the elderly in various countries worldwide, including Thailand has been increasing. In 2021, Thailand fully entered into being an aging society with the number of the elderly accounting for over 20% of all the population. Additionally, it is expected that in 2030, there will be an elderly population of up to 25% of the total national population (Nong Khai Provincial Statistical Office, 2016). The maximum proportion of the elderly population in Thailand is also in the Northeastern region (up to 18.9%). Nong Khai is a province with a high elderly population. Among the total population of 308,051 people, there are 57,779 elderly people (18.76%) (Provincial Community Development of Nong Khai, 2018), thus implying a high proportion of the elderly per total population. The population structure is changing to an aging society and from extended families to nuclear families along with the changing lifestyle from cooking fresh food in households to ready-to-cook/ready-to-eat food instead. This has

caused huge malnutrition problems in the Thai people, particularly in the Northeastern part with the maximum population of 35% of the national population (Foundation of Thai Gerontology Research and Development Institute, 2018). As a result, most problems are caused by inappropriate consumption behavior. Furthermore, another malnutrition problem of the elderly is that their consumption is not in accordance with what their body needs. However, different illnesses have made people pay more attention to food consumption and have self-care for better health. Thus, they rather focus on healthy food by consuming more vegetables and fruits, and less trans fat.

In addition, healthy food refers to a diet that results in healthiness after consumption, and food that brings benefits to the body apart from macronutrients required for the body. This can also reduce risks of diseases depending on the types of food, variety of food, water, and sufficient minerals, as well as vitamins required (Laurujisawat, 2013). Thus, the health food market for the elderly has increased due to the increasing number of elderly with purchasing power who are looking for products to meet their needs. Moreover, the elderly have different consumption characteristics from general consumers, e.g., they need low energy, high calcium, vitamins, low calcium, and low fats; possibly in a form of supplementary food and vitamins.

Because of the undernutrition in Northeastern Thailand and consideration of the overall different age ranges in the population of Nong Khai, it was found that 18.76% of the people were aged over 60 years and 17.39% were aged between 50-59 years. Most of the population was between 35-49 years (25.21%), hence implying the tendency of the population in Nong Khai to have a larger number of elderly in the future (Provincial Community Development of Nong Khai, 2018). From the above, this reflects Nong Khai Municipality to be one of the appropriate representative areas of the Northeastern region in terms of a study on the healthy food of the elderly.

To conclude, healthy products for the elderly has the tendency to increase, particularly in a new market like Northeastern Thailand. Nong Khai province is also an area with a large number of elderly in Nong Khai Municipality. Nevertheless, there have been no studies on food for the elderly. However, there are still several limitations of studies on the economic factors and lifestyles on the marketing mix of healthy food consumption, particularly case studies in the Northeastern part of Thailand to fulfill those studies and the obtained findings. This would lead to guidelines and support the development of healthy food products for the elderly with appropriate daily intakes, as well as provide future food product strategies for the elderly.

THEORIES, CONCEPTS, AND RELATED RESEARCH

The economic system refers to economic institutions with a patternized relationship, which is set by a group of people and/or a country to implement economic activities. An economic system basically consists of households and key activity units, i.e., production and consumption. Thus, people in society consume products and services. This also creates occupations and income because of product and service distribution. Moreover, the characteristics of the activities in the households and production units would be patternized in order to organize the economy in the same direction. Consequently, all economic systems must be organized in terms of resource allocation and control of the production factors. As such, the government in each country would set economic rules and mechanisms as national economic policies. Therefore, the economic study in this research mainly focused on the household sector, which usually consumed products and services from the business sector. The household sector would receive returns in the forms of rental fee, salary, interest, and profits from the business sector. These different forms of income would be spent. Thus, if people reduced their consumption for whatever reasons, this would affect the business sector; followed by having lower production, which would finally result in employment and household income. Sriwichailamphan (2011) and Ali and Ali (2020) studied the factors affecting the purchase intention for healthy food in India among 218 consumers. It was found that there was a relationship of the population statistics among the expenses, income, and education. Likewise, the health concern was a key factor affecting buyers based on the quality of the products, i.e., tastes, packaging, prices, and convenience. Additionally, Ludbrook (2019) studied diseases caused by a lack of communication. It was found that this issue was hugely connected with lifestyles under increasing diseases. As a consequence, prices must be adjusted appropriately with consumers because high prices would cause lower demands/needs. Thus, the effect size would depend on price elasticity. Lo et al. (2012) also studied the quality of food measured by the reflection of a vulnerable group, i.e., 1,783 elderly. This group of people could reflect the quality food consumption with an unclear financial status in Taiwan. Furthermore, the dietary diversity score (DSS) was analyzed and found to be between 0-6 from the 24-hour food consumption for one month. Moreover, it was found that food prices hugely affected the elderly. To clarify, those with poor financial status would choose food with lower prices than consumers with a good financial status. Likewise, Nonthapot (2019) studied the economic factors affecting the purchase of street food among 400 consumers in Nong Khai province. It was found that the economic factors positively affected the marketing mix. Product, physical evidence, and presentation had the most positive and indirect effect, respectively. Thus, it could be clearly

seen that the key economic factors on the 7Ps (product, price, place, people, promotion, process, and physical evidence) marketing factors were income or finance. The effect size depended on price elasticity. Those with low income or low liquidity would choose low-priced food. Therefore, financial management and health promotions could reduce financial limitations.

Lifestyle refers to the description of taste or value of living through different forms of consumption. Those with similar preferences usually make a group to buy similar products and spend time doing similar activities. Thus, marketers are able to produce products that meet the needs of different groups of people. In addition, lifestyle can be considered from living through the forms of spending, activities, way of life, similar preferences, and similar products. Hence, the obtained data could be used for planning policies to sell and/or to produce products that could meet consumers' needs; and to reach consumers through their activities, places, and give precedence and their attitudes toward the surroundings. All data would generate product development that would meet most specific consumer needs. As such, lifestyle is reflected through interests, activities, and opinions. Market segmentation based on lifestyle is very popular because this indicates consumers' characteristics, and describes psychological characteristics more precisely than market segmentation based on demographic characteristics. This could also describe or measure lifestyle (Saengsawangwattana, 2015). Oliver et al. (2020) implemented qualitative research by using a focus group of 11 female consumers who worked on food preparation in the southwest of Pennsylvania, USA. It was found that unhealthy food consumption was caused by knowledge, sources of materials, need for special food, family, as well as cultural influences. Witzling and Shaw (2019) studied consumers to understand them and their needs from 577 households in Wisconsin, USA. The consumer groups were categorized into the groups based on lifestyle that was related to local food and political policies, i.e., "adventurous", a group with the highest interest in local food. "traditional", a group with interest in high-quality local food and local food based on the environment and special occasions, and "rational", a group with interest in common and convenient local food. Likewise, Frehner et al. (2021) studied food production affecting the environment and social risks. It was found that healthy food consumption was indispensable for people with health concerns, and that food sustainability was required and needed knowledge for lifestyle improvement. According to the survey on population statistics and factors of lifestyle related to food consumption in Switzerland among 2,057 samples, the effects were caused by nationality, language, age, smoking behavior, and particularly income and education that were hugely related to food consumption. Lubowiecki-Vikuk et al. (2021) studied the environmental change affecting human activities and the effects from increasing civilization. It was found that

the economic system would be affected and would not be reversed with the environment if people did not change their habits. Thus, a study on the consumer lifestyle on the development of a paradigm that was affected by attitudes, facilities, and physical structures was required for sustainable management because this was related to the way of life and original culture. The description of lifestyle and consumer behavior was also related to sustainable development, but was not the same in all areas. Awareness and responsibility of consumer behavior required a long period of time for implementation and depended on each individual, government policies, and the marketing factors. Lastly, studies on research assessment (structured equation model (SEM)) were challenging for using tools to promote a sustainable lifestyle. Kim et al. (2018) studied the lifestyle of food consumption in loners (health management resources (HMR) products) by the EFA. The factors were categorized into three groups, i.e., “utilitarians” (19.3%), “health-conscious utilitarians” (22.2%), and “variety seekers” (58.5%). The first group was aged around 20 years, single, unemployed, and had a lower income when compared with the other groups. This group had low interest in the trend of healthy food and its quality. They paid more attention to convenience and economic worthiness if they had to buy HMR products. The next group was aged around 40-50 years. This group still mainly considered convenience and economic conditions if they had to buy HMR products. However, quality was highly regarded. The last group was educated and unemployed with an interest in HMR products. Quality was highly regarded, too, along with convenience and economic worthiness if they had to buy HMR products. Thus, it could be seen that lifestyle affected the 7Ps in terms of worthiness and purchase convenience, e.g., marketing channels, places, presentation, services, and product delivery. This would lead to the conceptual framework as shown in Figure 2.

METHOD

Population and Samples

The population in the research consisted of 9,951 elderly aged over 60 years in Nong Khai Municipality (Social Welfare Division, Nong Khai Municipality, 2021). According to the elderly population, a minimum set of 385 samples would be needed for the research (Nonthapot et al., 2018), which the required number was obtained after the calculation. The samples were chosen by convenience sampling.

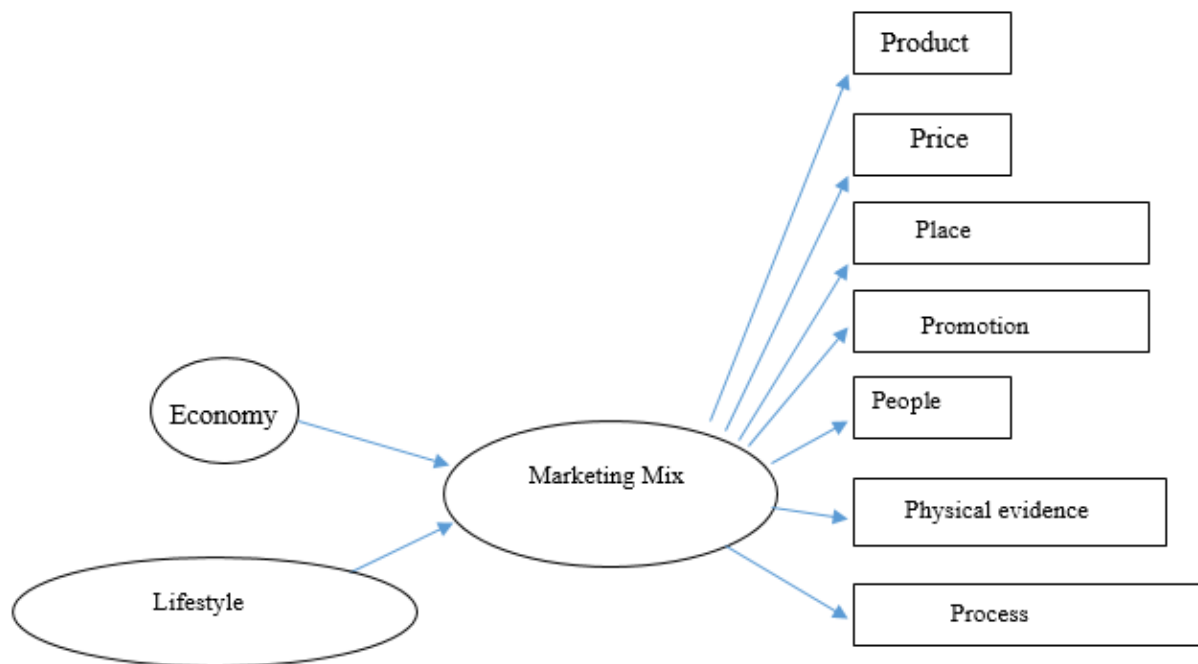
Instrument and Data Analysis

The instrument used in this research was a questionnaire developed by the examination of previous related sources and research for extension and application. The questionnaire was divided into three parts as follows: Part 1 consisted of questions about the general and demographic data of the respondents, i.e., sex, age, marital status, education level, occupation, monthly income, and domicile. It contained seven closed-ended questions and requested the best answer for each one. Part 2 comprised questions about the marketing mix affecting the purchase of healthy food in Nong Khai Municipality. The questions were divided into the 7Ps. This section met the objectives as it was developed with a five-point Likert scale. Only one answer could be chosen in each question; there was a total of 31 questions. Part 3 consisted of questions about the lifestyle and economic factors affecting the healthy food market, which was divided into nine and four questions, respectively. This section met the objectives as it was developed with a five-point Likert scale. Only one answer could be chosen in each question; there was a total of 13 questions. There were five choices in each question.

For testing the content validity to make sure of the instrument's usability, logical analysis was used. To clarify, the index of item-objective congruence (IOC) (Official Journal of the International Test Commission, 2003) was analyzed. The quality of the questionnaire was tested by five experts. It was found that the $IOC=0.8$ with the reliability tested by Cronbach $\alpha>0.7$, consequently implying that the instrument was reliable. After that, the project and the questionnaire were submitted to the Center for Ethics in Human Research of Khon Kaen University, Thailand in order to request for approval of the ethical consideration in human research. After the request had been approved, the next step was implemented. To clarify, the data were collected from 385 samples, which was obtained by convenience sampling among consumers aged over 60 years in Nong Khai Municipality. The questionnaire was handed to the samples, who were notified of the objectives, texts, and how to answer the questions. Then, they were instructed to complete the questionnaire on their own. After collecting all the completed sets of the questionnaire from the respondents, the questionnaires were analyzed as follows: Part 1 was analyzed for the general data. Parts 2 and 3 were analyzed for the SEM. The analysis of the economic factors included resource allocation, materials, reliable production, management system, commercial strategies, distribution, control of the product quantity, competitiveness, and appropriate prices. Moreover, lifestyle included cooking at home, regular exercise, daily excretion, annual physical examination, consideration of the food benefits and nutrition, interest in new cooking methods, following-up the information of diseases, safety and high nutritive value, appropriateness with daily life, and avoiding unhealthy

food. The second SEM was analyzed by Wraps-PLS to test the effects between the independent and dependent variables. The hypothesis in this study was “The factors of the marketing mix are affected by the lifestyle and economic factors in the target consumers aged over 60 years in Nong Khai Municipality.”

Fig. 1: Economic effects and lifestyle on the marketing mix.



RESULTS AND DISCUSSION

General Data

From the questionnaire about healthy food consumption behavior among the 398 samples aged over 60 years in Nong Khai Municipality, it was found that there were 95 males and 303 females (23.9% and 76.1%, respectively) (Table 1). It could be seen that the female elderly were three times more interested to be the volunteers in this research than the males. When dividing by the age ranges, most elderly were aged between 60-69 years (62.6%), while 8.3% of them were aged 80 years. The minimum and the maximum ages were 60 and 88 years, respectively because those aged between 60-69 years could read and answer efficiently. When they became older, their problem of long-sightedness got worse, thus resulting in difficulties of reading the questionnaire. Fatigue also occurred easily while completing the questionnaire. Most of them were married (52.9%), followed by widowed (29.1%), single (10.3%), divorced (7.0%), and separated (1.3%), respectively. The status of “married” implied that their spouses were still alive. For a number of the respondents aged between 60-69 years, those aged 70-79

years, and ≥ 80 years, their status of “widowed” implied that their spouses had already passed away due to aging. This indicated a good relationship in the families. Most graduated from the primary education level (45.2%), followed by a bachelor’s degree, and secondary education level (16.8% and 13.6%, respectively). Most were housewives (39.9%) and pensioners (22.7%). Because most lived in the municipality, an urban area, agriculturists were rarely found. They also rarely worked as freelancers due to aging, and thus they were employed longer. For this reason, most stayed home and joined social activities. They earned 10,000 Thai Baht per month on average. The maximum income was 60,000 Thai Baht per month and the minimum was 600 Thai Baht per month, respectively. Most income came from a pension, businesses inherited by their descendants, and old-age allowance. These were the appropriate sources of income for survival in daily life. For the domicile, most volunteers lived in Mueang District (32.4%) because the proportion of living in the urban area was higher than in other subdistricts. There was only 1% of the volunteers from Nong Kom Koh District because the administrative districts in Nong Kom Koh Subdistrict were divided into two parts, i.e., Nong Khai Municipality and Nong Kom Koh Municipality, thus resulting in a few people of Nong Kom Koh District in the municipality.

Economic Effects and Lifestyle on the Marketing Mix

For the factors of the marketing mix affecting the healthy food purchase behavior in Nong Khai Municipality, the samples had high opinions on all factors (Table 1).

Table 1: The factors of the marketing mix affecting healthy food purchase behavior in Nong Khai Municipality.

Opinion	Mean (X)	SD	Interpretation
Product			
1. Various types	4.13	0.78	High
2. Clean and good quality	4.10	0.80	High
3. Good tastes	4.00	0.80	High
4. Appropriate amount for one meal	3.96	0.83	High
5. Possible for long storage	3.86	0.90	High
6. With nutritive value on the label	3.89	0.91	High
7. Attractive and modern packaging	3.98	0.83	High
Price			
8. Worth the food quality	3.91	0.87	High
9. Clear price on the label	3.90	0.89	High
10. Worth the amount of food	3.87	0.94	High
11. Not change with the seasons	3.85	0.94	High
Place			
12. Can reach the target customers	3.84	0.89	High
13. Can order online	3.79	0.98	High
14. Can order by phone	3.79	0.99	High
Promotion	3.87	1.01	High

15. Advertising and public relations through media, e.g., TV, YouTube, etc.			
16. Various discounts that meet customer needs	3.82	1.03	High
17. Reward redemption	3.68	1.08	High
18. Healthy food public relations activities	3.84	0.98	High
19. Discounts for check-in	3.75	1.01	High
20. Can order by phone/LINE/FB/IG	3.76	1.02	High
People			
21. Sufficient sales representatives/service providers to meet customers' needs	3.85	0.92	High
22. Convenient and fast services	3.92	0.88	High
23. Good human relations, polite, and pleasant manner	3.97	0.88	High
24. Good personalities and clean dressing	3.98	0.88	High
25. Knowledgeable and can recommend/ give more information correctly	3.96	0.88	High
Physical evidence			
26. Clean and well-organized	4.00	0.88	High
27. Attractive, distinctive, and easy to remember	3.97	0.90	High
28. With illustrations/images in the menu	3.89	0.95	High
29. Large and sufficient parking areas	3.78	0.98	High
Process			
30. Quick	3.83	0.97	High
31. Convenient	3.82	0.98	High
32. Clear sequence or process	3.85	0.96	High
33. With delivery services/processes	3.83	1.01	High
34. With various and different services from competitors	3.76	1.02	High
Total	3.88	0.93	High

Source: Calculation.

For the lifestyle and economic factors affecting healthy food purchase behavior, it was found that the volunteers had high opinions on all factors (Table 2).

Table 2: Lifestyle and economic factors affecting healthy food purchase behavior.

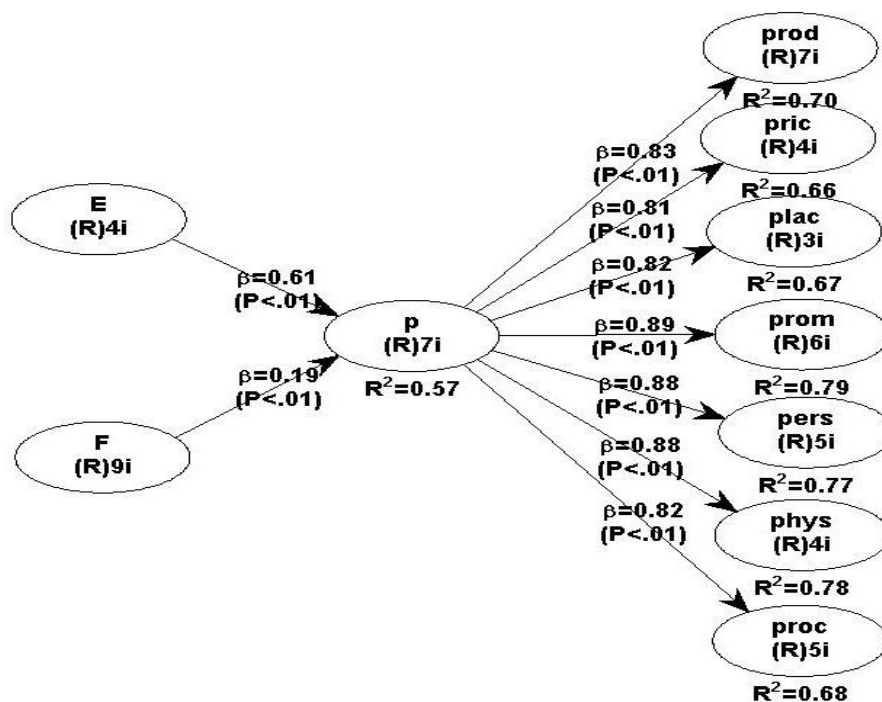
Opinion	Mean (X)	SD	Interpretation
Economic factors			
1. National resource and material allocation	3.98	0.90	High
2. Reliable production	4.00	0.86	High
3. Management system and promotion	3.97	0.78	High
4. Product distribution and appropriate product quantity control	3.93	0.84	High
Lifestyle			
Health activities			
5. Like cooking at home	4.20	0.87	High
6. Exercise regularly and excrete daily	4.17	0.87	High
7. Have an annual physical examination	4.14	0.91	High

Interest in healthy food

8. Consider the benefits and nutritive value from food consumption	4.20	0.85	High
9. Is interested in new cooking methods, e.g., using air fryers	3.98	0.97	High
10. Follow-up on information of diseases caused by food consumption	4.15	0.88	High
Opinions on healthy food			
11. Safe and high nutritive value	4.04	0.94	High
12. Appropriate with daily life	4.07	0.94	High
13. Avoid ready- to- eat food/ fast food because it is unhealthy	4.07	0.91	High
Total	4.07	0.89	High

Source: Calculation.

Fig. 2: The analysis of the second PLS-SEM.



Notes: E = Economic factors, F = Lifestyle, P = Product, pric = Price, plac = Place, prom = Promotion, pers = people, phys = physical evidence, and proc = process.

According to the SEM analysis to meet Objective 2, it was found that the SEM was a reflective model, which was basically the most important one for behavioral science research (Hensler, 2017). However, the model fit criteria must consider the standardized factor loading > 0.70, Cronbach alpha > 0.70, average variance extraction (AVE) > 0.50, and AVE must be over squared correlation of the latent variables (Hair et al., 2011).

As shown in Figure 2, the economic factors (E) and lifestyle (F) were the independent variables. Product, price, place, promotion, people, physical evidence, and process were the dependent variables. The marketing factors were the latent variables. The data had an average path coefficient (APC) = 0.748 ($P < 0.001$), average R-squared (ARS) = 0.701 ($P < 0.001$), and average adjusted R-squared (AARS) = 0.700 ($P < 0.001$). $R^2 > 0.6$ implied that they were highly related to one another. To clarify, all 7Ps (P) were affected by E and F (H_0 was rejected. H_1 was accepted). Each variable was independent on one another. The average Variance Inflation Factor (VIF) = 1.982, thus implying a good correlation of the indices (acceptable ≤ 5 ; good ≤ 3.3); and Tenenhaus GoF (GoF) = 0.744, thus implying a large size (small ≥ 0.1 ; medium ≥ 0.25 ; large ≥ 0.36). E had $\beta = 0.61$ ($P < 0.01$), thus implying that the economic factors affected the marketing factors (H_0 was rejected. H_1 was accepted). F had $\beta = 0.19$ ($P < 0.01$), thus implying that lifestyle affected the marketing factors (H_0 was rejected. H_1 was accepted). Likewise, Nonthapot (2019) studied the economic factors affecting the marketing mechanism and found that economic factors significantly affected the 7Ps ($p < 0.01$).

The 7Ps were secondly affected by E and F (H_0 was rejected. H_1 was accepted). The most affected item was promotion, which $\beta = 0.89$ ($P < 0.01$), followed by people, physical evidence, product, place, and process. The least affected item was price, which $\beta = 0.81$ ($P < 0.01$). According to the data obtained, it was found that the 7Ps was hugely affected by E and F. The elderly sample considered promotion as the first priority for choosing healthy food consumption, similar to the study on consumers who bought items at the walking street in Nong Khai Municipality (ibid). This implied that consumers of all ages were interested in promotion that represented the worthiness of consumption. However, the elderly in Nong Khai Municipality also considered physical evidence and recommendations from service providers. In contrast, the elderly in Bangkok focused on price and products (Annop & Ruangkalapawongse, 2015) because there were various types of products for the elderly. Thus, the prices and details must be compared before purchasing and after consumption. Nong Khai Municipality was a small town with a low cost of living and a few shops. As a result, the consideration of place, process, and price was less affected like the food purchases of the elderly in Cho Ho Subdistrict, Mueang District, Nakhon Ratchasima province (Sakullertwattana et al., 2018) that was a small town, too.

When considering E, F, and the 7Ps, it was found that the R-square and adjusted R square were significantly higher than 0.66 ($P < 0.01$) and independent on one another. VIF = 2.038 and 2.723 < 10 with the composite reliability = 0.943-0.975 (should not be < 0.70), Cronbach's alpha = 0.91-0.97 (should not be < 0.7), AVE = 0.61-0.89 (should not be < 0.5),

and the Q square = 0.56-0.78 (> 0), hence showing the reliability of the studied indices (Jhantasana, 2019) (Table 3). These implied that the SEM by the PLS-SEM processing was highly reliable.

Discriminant validity considered by the loading of each index in the latent variable was higher than the cross loading in other latent variables. The data was divided into 10 groups as set, i.e., E, F, the 7Ps, and marketing factors (P). The square root AVE > 0.84 , which was higher than the correlation between that latent variable and other latent variables. Moreover, the marketing factors were affected by those seven factors. More specifically, process was affected the most (0.942 [$p < 0.01$]), followed by price, place, physical evidence, people, promotion, and product, respectively (0.921, 0.915, 0.907, 0.902, 0.864, and 0.856, respectively). E significantly affected the marketing factors (0.932) more than F (0.786) ($p < 0.01$). However, all seven marketing factors were affected by E and F (Table 4).

When considering the indirect effects from the second PLS-SEM, it was found that E and the effect size were indirectly affected more than F. Both E, F, and the effect size were indirectly affected the most by promotion, people, and physical evidence (Table 5).

Table 3: Statistical results.

	E	F	prod	pric	plac	prom	pers	phys	proc	P
R-squared			0.695	0.663	0.669	0.786	0.766	0.777	0.679	0.569
Adj.R-squared			0.694	0.662	0.668	0.786	0.765	0.776	0.678	0.567
Composite reliab.	0.964	0.935	0.951	0.953	0.943	0.946	0.956	0.949	0.975	0.947
Cronbach's alpha	0.950	0.921	0.939	0.935	0.909	0.932	0.943	0.928	0.968	0.934
Avg.var.extrac.	0.869	0.617	0.734	0.837	0.848	0.746	0.813	0.822	0.888	0.718
Full Collin.VIF	2.723	2.038	Inf	Inf	Inf	Inf	Inf	Inf	Inf	Inf
Q-squared			0.694	0.663	0.669	0.786	0.766	0.776	0.678	0.565
Min	- 3.085	- 2.984	- 2.789	- 2.862	-2.817	-2.775	- 3.666	-3.472	-3.030	- 3.131
Max	1.309	1.243	1.410	1.337	1.359	1.380	1.325	1.293	1.268	1.579
Median	0.038	0.019	0.011	0.137	0.221	0.244	0.077	0.102	0.193	0.166
Mode	0.038	1.243	0.011	0.137	0.221	0.244	0.077	0.102	0.193	0.166
Skewness	- 0.539	- 0.797	- 0.579	- 0.517	-0.601	-0.749	- 0.665	-0.609	-0.758	- 0.756
Exc.kurtosis	- 0.123	0.377	- 0.050	- 0.330	-0.103	-0.049	0.091	-0.126	0.168	- 0.019
Unimodal-RS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unimodal-KMV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Normal-JB	No	No	No	No	No	No	No	No	No	No
Normal-RJB	No	No	No	No	No	No	No	No	No	No
Histogram	View	View	View	View	View	View	View	View	View	View

Source: Calculation.

Notes: E = Economic factors, F = Lifestyle, P =, Product, pric = Price, plac = Place, prom = Promotion, pers = people, phys = physical evidence, and proc = process.

Table 4: Correlation among the factors.

	E	F	prod	pric	plac	prom	pers	phys	proc	P	Type	SE	P value
E	(0.932)	0.692	0.613	0.582	0.524	0.659	0.663	0.642	0.576	0.719	Reflective	0.044	<0.001
F	0.692	(0.786)	0.537	0.505	0.433	0.529	0.563	0.544	0.472	0.605	Reflective	0.044	<0.001
prod	0.613	0.537	(0.856)	0.724	0.656	0.724	0.640	0.648	0.560	0.834	Reflective	0.044	<0.001
pric	0.582	0.505	0.724	(0.915)	0.620	0.642	0.653	0.643	0.563	0.814	Reflective	0.044	<0.001
plac	0.524	0.433	0.656	0.620	(0.921)	0.772	0.611	0.614	0.581	0.817	Reflective	0.045	<0.001
prom	0.659	0.529	0.724	0.642	0.772	(0.864)	0.700	0.729	0.678	0.886	Reflective	0.044	<0.001
pers	0.663	0.563	0.640	0.653	0.611	0.700	(0.902)	0.825	0.746	0.875	Reflective	0.044	<0.001
phys	0.642	0.544	0.648	0.643	0.614	0.729	0.825	(0.907)	0.750	0.881	Reflective	0.045	<0.001
proc	0.576	0.472	0.560	0.563	0.581	0.678	0.746	0.750	(0.942)	0.823	Reflective	0.044	<0.001
P	0.719	0.605	0.834	0.814	0.817	0.886	0.875	0.881	0.823	(0.848)	Reflective	0.044	<0.001

Source: Calculation.

Notes: E = Economic factors, F = Lifestyle, P = Product, pric = Price, plac = Place, prom = Promotion, pers = people, phys = physical evidence, and proc = process.

Table 5: Effects from size.

	Indirect Effects		Effect Sizes	
	E	F	E	F
prod	0.506	0.160	0.310	0.086
pric	0.494	0.157	0.287	0.079
plac	0.496	0.157	0.260	0.068
prom	0.538	0.171	0.354	0.090
pers	0.531	0.168	0.352	0.095
phys	0.535	0.170	0.343	0.092
proc	0.500	0.158	0.288	0.075

Source: Calculation.

Notes: E = Economic factors, F = Lifestyle, P = Product, pric = Price, plac = Place, prom = Promotion, pers = people, phys = physical evidence, and proc = process.

CONCLUSIONS AND RECOMMENDATIONS

According to the study on the elderly in Nong Khai Municipality and the effects of the economic factors and lifestyle on the marketing mix for healthy food consumption by the second SEM analysis ($p < 0.01$) among 398 volunteers aged over 60 years, obtained by convenience sampling, and using the questionnaire for data collection, it was found that most volunteers were aged between 60-69 years, married, graduated from the primary education level, were housewives and pensioners, and earned 10,000 Thai Baht per month on average. The economic factors (resource allocation, materials, reliable production, management system, commercial strategies, distribution, control of product quantity, competitiveness, and appropriate prices) and lifestyle (cooking at home, regular exercise, daily excretion, annual physical examination, consideration of the food benefits and nutrition, interest in new cooking methods, following-up information of diseases, safety and high nutritive value, appropriateness with daily life, and avoiding unhealthy food) affected all seven marketing factors of healthy food consumption of the elderly in Nong Khai Municipality. $APC = 0.748$ ($P < 0.001$), $ARS =$

0.701 ($P < 0.001$), and AARS = 0.700 ($P < 0.001$), hence implying that they were highly related. The economic factors were highly affected more than lifestyle.

Entrepreneurs could apply the data from this research for further development of healthy food products for the elderly. The prioritization could be arranged in sequence as follows, i.e., people, physical evidence, product, place, process, and price to be in accordance with needs of the elderly. Simultaneously, the government sector could apply the elderly consumer behavior to promote health, self-care, and/or to provide welfare policies for the elderly.

ACKNOWLEDGEMENT

This research as scholarship under the Research and Graduate Studies, Khon Kaen University, Thailand.

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