

ANALYSIS OF TRADITIONAL FOOD (KHAO YAM) CONSUMPTION IN SOUTHERN BORDER PROVINCE OF THAILAND

Ismail Bulent GURBUZ, Modassir MACABANGIN, Abdulhakim MADIYOH

Bursa Uludag University, Agricultural Faculty, Department of Agricultural Economics, 16059 Bursa, Turkey, Phone: +902242941591, Mobile: +905322837563 E-mails: bulent@uludag.edu.tr, modassirmacabangin@gmail.com, chul987@gmail.com

Corresponding author: bulent@uludag.edu.tr

Abstract

Khao yam or Nasi Kerabu is a type of a traditional food, holding an important place in food consumption in Southern Thailand and Northern Malaysia. It is commonly consumed for breakfast and a good source of high nutritional value due to the availability of different varieties of vegetables and herbs in the actual dish. The main material of this study is comprised data obtained from online questionnaire surveys performed during December 2018 with 130 participants from three province borders of Southern Thailand (Pattani, Yala, Narathiwat). One of the preeminent highlights of the study is the availability of Khao yam sellers nearby all of the respondents' homes. This indicates that Khao yam food business in southern part of Thailand is continuously expanding. More researchers and policy makers should take Khao yam business sector as positive source in developing new policies and strategies.

Key words: *Khao yam, Nasi kerabu, Street food consumption, Thai cuisines*

INTRODUCTION

Nowadays, Thai cuisines have become an international sensation in food business industry [47]. Since the Thai government has launched "Thai Kitchen to the World Project" from 2004, Thai food business has expanded globally and in ASEAN market [37].

Thai food is known internationally for its unique taste. Historically, the Thai foods that are recognized today is actually a mixed of Indian and Chinese cuisines. It has become one of the most popular culinary products around the world. As a matter of fact, western food consumers ranked Thai food fourth behind Italian, French and Chinese cuisines in respect of ethnic foods [39]. In addition, when the respondents were asked about their most favourite cuisines, Thai food was placed sixth after Italian, French, Japanese, Chinese and Indian foods.

For a number of countries in Asia, rice has been and still remains as traditional staple food [18]. Rice has a thousand of different varieties [2][14][21] and has a lot of different ways to be cook. Rice can be used to make desserts, pastries, and even beverages. Several

countries in Asia like Philippines, Japan, Indonesia, Malaysia, Thailand, Cambodia, China, and Korea consume rice as main dish in their meal [34].

Rice being the staple food in these ASEAN countries, it already became part of their way of life, culture, customs and traditions. However, like most of the Asian countries mentioned, Thai people also cannot really eat rice alone. They consume rice as a main dish of their meal together with another kind of dish or a side dish such as, chicken, meat, fish, and veggies [6]. In Southern part of Thailand, one of the traditional foods made up of rice is called "Khao Yam" or "Nasi Kerabu" in Malaysia.

Khao Yam

"Khao" means rice and "Yam" means salad. Khao yam or rice salad is a traditional food from Southern part of Thailand and can also be found in Northern part of Malaysia, particularly in Kelantan, Malaysia [10][40][48]. With a presence of a "yum" in its name which roughly interprets to "mixed" or "tossed" salad, this meal features a assortment of vegetables and Thai herbs

which can be a rich source of fiber and nutrition [25].

In addition to the variety of vegetables and herbs being mixed, the dish contains of cooked rice and distinctive sauce called “Budu” made up from fermented fish. This dressing is an essential ingredient of a delicious Khao yam which adds a salty, sweet and fishy taste in the final product. Khao yam is usually eaten with fried fish or grilled chicken, salted duck egg, fish crackers, chili paste, coconut gravy with fermented fish sauce as well as salad consisting of long bean or four angle bean, cabbage, bean sprouts, toasted coconut desiccate, Vietnamese coriander and ginger torch flower [3]. It is a dish high in nutritional value accented by hints of floral aroma from the presence of many fresh ingredients. Depending on the region, Khao yam is also sometimes eaten along with mango salad and it is very popular as a breakfast dish throughout southern Thailand [19].

The dish has been known about 300 years ago, since Three Southern province borders of Thailand (Pattani, Yala and Narathiwat) and Kelantan of Malaysia was in the same country of Sultanate of Patani. That’s why we can find this as traditional food in northern Malaysia and Southern Thailand [30].

Due to being traditional and cultural food, Khao yam has merely turn into a source of income for some people in the region by means of a business. Khao yam can be seen being sold in a small restaurant, business cart or in the street. These days, consumption of street food and fast food has become common, especially in urban area and cities of developing countries [5]. In most of the third world countries, people eating outside of their home are immensely increasing [11][1]. Thus, this study aims to determine the consumption behavior and the opinion of the consumers of Khao yam food from three southern border of Thailand (Pattani, Yala, Narathiwat).

MATERIALS AND METHODS

The research study used comprised data obtained from online questionnaire surveys

work, performed during December 2018 with a total of 130 participants from three southern border province of Thailand (Pattani, Yala, Narathiwat). The participants are consumers of Khao yam in different ages, level of education, level of income and from different homelands.

The number of surveys was determined by using the table, generated by the formula used in the determination of the sample volume. The sample volume was determined from the table to be 123 at a reliability level of 95 percent. A total of 130 people were surveyed and selected randomly, 65 male and 65 female. In the survey forms, the questionnaires regarding the demographic information of the participants, their consumption behavior and their opinion of traditional food Khao yam were prepared as close-ended. The SPSS package software was used in the assessment of the survey result [12]. Frequency table, crosstabs and chi-square test were used in the analysis of data.

RESULTS AND DISCUSSIONS

The findings of the study were performed with three steps; (1) Percentage analysis of demographic features, (2) Independent analysis between some of demographic variables and participant’s consumption behaviour for Khao yam, and (3) Independent analysis between some of demographic variables and participant’s opinion of Khao yam.

(1)Percentage analysis of Demographic Features

Demographic features such as gender, age, education, and income level of the respondents were presented in Table 1. Out of 130 respondents that have been surveyed, half of it (50%) was male and another half was female. Examining the age of the participants, 54 percent of them were 21-25 years old, while 30 percent belongs to 15-20 years old group and 11.5 percent are 26-30 years old. The majority of the respondents (80.8%) were undergraduate students, the rest are master’s degree (11.5%) and doctorate (7.7%). It can also be observed that 41.5% of the

participants reported a family income of less than 6,000 Baht, then 28.5% of them were in the 6,001-8,000 Baht, while 7.7% belongs to 8,001-10,000 Baht earner and 14.6% earning more than 12,000 Baht. With regards to the homeland of the respondents, 56.9% of them were from Pattani province, while 23.1% and 20% of them were from Narathiwat and Yala respectively. (Table 1).

Table 1. Demographic Features

Demographic	Group	Frequency (person)	Percent (%)
Gender	Male	65	50.0
	Female	65	50.0
Age	15-20year	39	30.0
	21-25year	71	54.0
	26-30year	15	11.5
	>30year	5	3.8
Education	Under graduate	105	80.8
	Master degree	15	11.5
	Doctor degree	10	7.7
Income	<6,000Baht	54	41.5
	6,001-8,000Baht	37	28.5
	8,001-10,000Baht	10	7.7
	10,001-12,000Baht	10	7.7
	>12,000Baht	19	14.6
Homeland	Pattani	74	56.9
	Yala	26	20.0
	Narathiwat	30	23.1
	Total	130	100.0

Source: Own calculation.

Table 2 shows the participant's consumption behavior for the traditional food of Khao yam, Base on the answers being produced by the respondents, the results found out that all of the participants were able to eat Khao yam and they were able to buy Khao yam nearby their homes. There are many Khao yam sellers in all Three Province Border Southern Thailand [23]. This indicates that Khao yam is more likely sold in a traditional food or street market.

Thailand is constantly experiencing fast development in modern type of food retailing (supermarkets, hypermarkets and convenience stores) for the last 20 years but still quite maintaining traditional form of fresh market [20][24]. The country's food retailing system comprises of a traditional sector that caters more affordable and traditional food for the consumers [44] and modern retailers.

In Thailand, there are roughly 90,000 street food outlets or food kiosk (Street Stalls/Kiosks in Thailand, n.d.). In 2012, nearly 250 billion THB earning from street food vending was recorded [42]. This result was also supported by Trafialek et al., indicating in his study that Thailand were one of the countries who got highest scores with

respect to street food vending sector [43]. This is why the results of the data for the respondents having an access of Khao yam near their home were not surprising. In addition, According to Burke et al., Muslims in particular area of southern Thailand (Songkhla, Narathiwat, Yala, Pattani) were able to afford their necessities and durable goods more than the Buddhist residences [7]. While they always eat Khao yam for breakfast of participants we found that most of them (80.8%) are always eating it for breakfast, while 19.2 percent of them were not always eating Khao yam for breakfast because nowadays there are so many kinds of food to take for breakfast. While the question about eating Khao yam in different times we found that most of them (76.9%) have eaten Khao yam in different times. As we known that Khao yam is a food not just for breakfast, there are so many Khao yam sellers are operating in different times. While the question about the thinking Khao yam is a main food of breakfast we found that 52.3% of them were thinking that Khao yam is not a main food of breakfast because there are so many kind of food for breakfast in that area.

Table 2. Distribution of respondents by age depending on educational level

Consumption Behavior	Yes	Percentage (%)	No	Percentage (%)
1. Are you able to eat Khao yam?	130	100	0	0
2. Is there a Khao yam seller nearby your home?	130	100	0	0
3. Do you always eat Khao yam for breakfast?	105	80.8	25	19.2
4. Have you eaten Khao yam in different times?	100	76.9	30	23.1
5. Do you think Khao yam is a main food of breakfast?	62	47.7	68	52.3
6. Do you know how to cook Khao yam?	96	73.8	34	26.2
7. Have you ever cooked Khao yam at home?	100	76.9	30	23.1

Source: Own calculation.

Mark Wiens have listed the most popular Thai breakfast meal in his website called "eating Thai food". As per common knowledge, Asian countries like Thailand love to eat rice considerably from breakfast, lunch until dinner. There are thousands varieties of Thai dishes, however, only few of them are considered as Thai breakfast or food exclusively for breakfast. Mark Wiens listed Khao yam as the most popular breakfast meal in southern Thailand [45]. Similar to Southern Thai people, Musa et al., reported that fried rice and some other dishes like Nasi kerabu,

nasi empit, and nasi tomato are roughly preferred during breakfast [29].

However, Mar Wiens also added on his blog that Thai people can pretty much eat the same food in breakfast, lunch and dinner. Unlike western people which have specific distinction of food for a certain meal time, most of ASEAN countries do not have their specific distinction.

Moreover, the question about knowing how to cook Khao yam we found that 73.8% of participants do know how to cook Khao yam, then 26.2% of them did not know how to cook Khao yam. While, the question about if ever cooked Khao yam at home we found that 76.9% of them cooked Khao yam at home, and then 23.1% of them never cooked Khao yam at home. Actually, the recipe of Khao yam is not so difficult to make, that's why the majority of consumers can make it by themselves and we can find its ingredients in markets (Table 2).

(2) Analysis Independent between Some of Demographic Variables and Participant's Consumption Behaviour for Khao yam

The Chi-square test for independence, also called Pearson's chi-square test or the chi-square test of association, it is used to discover if there is a relationship between two categorical variables. Chi-square is a versatile statistical test used to examine the significance of relationships between two (or more) variables [8]. In this step, the demographic variables that we prefer to examine are gender and level of incomes with their consumption behaviour for Khao yam by chi-square test.

In the following example, the two variables are "gender" and "consumption behaviour of consumers." The result of Chi-Square test shows that there is significant difference between gender in terms of the question five ($p < 0.001$) and the question seven ($p < 0.001$). The same result can also be interpreted in the mean that male and female has significant difference in the question "do you think Khao yam is a main food of breakfast" and "have you ever cooked Khao yam at home". Moreover, the result of chi-square test shows that there is no significant difference between

male and female in terms of which answer of the question three ($p = 0.504$), four ($p = 0.582$) and the question six ($p = 0.275$). In other words, the result can be interpreted to mean that male and female has no significant difference for the question "do you always eat Khao yam for breakfast", "have you eaten Khao yam in different times" and "do you know how to cook Khao yam (Table 3).

Table 3. Chi-Square Analysis between Gender and Consumption Behavior

Gender	Consumption Behaviour		Sig.
	3. Do you always eat Khao yam at breakfast?		
	Yes	No	
Male	51	14	0.504
Female	54	11	
	4. Have you eaten Khao yam in different times?		
	Yes	No	
Male	50	15	0.582
Female	50	15	
	5. Do you think Khao yam is a main food of breakfast?		
	Yes	No	
Male	15	50	<0.001*
Female	47	18	
	6. Do you know how to cook Khao yam?		
	Yes	No	
Male	50	15	0.275
Female	46	19	
	7. Have you ever cooked Khao yam at home?		
	Yes	No	
Male	15	50	<0.001*
Female	47	18	

* $p = 0.05$

Source: Own calculation.

In literature, it is projected that 12% to 34% of children and adolescents, frequently miss breakfast, and this percentage is found to upsurge depending on age [41].

In the study conducted by Sampson et al., most of the respondents (79%) were eating breakfast before going to school; however, the results does not show significant difference in the gender of the respondents [33]. Furthermore, Siega-Riz et al. stated on his study that adolescent males are more probable in consuming their breakfast [35]. This statement was also supported by Steyn et al., who reported that males have higher percentage of street food consumption than the females [38]. Sirichakwal et al. also concluded on his study conducted in Bangkok, Thailand that 79% of the students were more likely to eat breakfast [36]. Khao yam food is commonly known as breakfast food in the region.

García-González et al., reported that regardless of age, female are able to get higher proportions than male in terms of cooking ability. She also added that younger people particularly those who were born from 1980s to 2000s revealing more interest in cooking [15]. These results are also positively comparable in the findings of the current study. The same results were also reported in some studies from different countries that women are generally responsible for kitchen and food preparation and basically have higher self-esteem or efficiency in food preparation skills [9][13] [49]. Khao yam food is a simple dish and has no complexity in preparation.

The results of Chi-square test of two variables such as “income” and “consumption behaviour of consumers” is shown in the table 4. The result of Chi-Square test shows that there is significant difference between income and consumption behaviour using the question three (p=0.002) and the question five (p=0.012). The same result can also be interpreted in terms of their mean, that level of income was significant difference for the question “do you always eat Khao yam at breakfast” and “do you think Khao yam is a main food of breakfast”.

Table 4. Chi-Square Analysis between Income level and Consumption Behavior

Level of Income	Consumption Behaviour		Sig.
	3. Do you always eat Khao yam at breakfast?		
	Yes	No	
<6,000-8,000฿	80	11	0.002*
8,001- >12,000฿	25	14	
	4. Have you eatan Khao yam in different times?		
	Yes	No	
<6,000-8,000฿	66	25	0.052
8,001- >12,000฿	34	5	
	5. Do you think Khao yam is a main food of breakfast?		
	Yes	No	
<6,000-8,000฿	37	54	0.012*
8,001- >12,000฿	25	14	
	6. Do you know how to cook Khao yam?		
	Yes	No	
<6,000-8,000฿	67	24	0.557
8,001- >12,000฿	29	10	
	7. Have you ever cooked Khao yam at home?		
	Yes	No	
<6,000-8,000฿	66	25	0.052
8,001- >12,000฿	34	5	

*p = 0.05

Source: Own calculation.

However, the result of chi-square test shows that there is no significant difference between

the level of income and the consumption behaviour of the respondents in the use of the question four (p=0.052), six (p=0.557) and the question seven (p= 0.052). In other words, the result of the mean can be interpreted as the level of income having no significant difference for the question “have you eaten Khao yam in different times”, “do you know how to cook Khao yam” and “have you ever cooked Khao yam at home” (Table 4).

Base on the table 2, when the respondents were asked of the presence of khao yam seller outside or nearby their home, a perfect answer of “Yes” were accumulated from the respondents. This clearly indicates that khao yam was mostly consumed outside homes. However, most of studies in the literature concluded that demographic factors and income as well are not good predictors to identify the consumption pattern of the street food consumers [16][32][38][46]. These findings could support the results of the current study, because Khao yam food like most the variety of street foods are not luxurious food and being consumed by the people regardless of income because of its affordability.

In some studies, it has been reported that consumers with lower income has higher confidence of preparing or making their own food at home[27][31].

(3) Analysis Independent between Some of Demographic Variables and Participant's Opinion for Traditional Food Khao yam

Examining the Participant's Opinion for the Traditional Food of Khao yam, according to the judgements (Table 5), we found that 71.5% of the participants were “agree” of consuming Khao yam because it was economical, then 20% and 8.5% of them “fully agree” and “do not agree” respectively. When the respondents were asked if they find Khao yam tasty we found that most of the participants agreed (96.9%). While, most of the participants believed that Khao yam is beneficial and healthy (fully agree=56.9% and agree=35.4%). Moreover, 52.3% percent of participants were “do not agree” that it is tastier than Kaomok, while 39.2 percent of participants were “agree” that it is tastier than

Kaomok. Kaomok is a one-plate dish. It consists of yellow fragrant rice sprinkled with crispy fried shallots and served with a piece of chicken that seems to be baked [3].

Table 5. Participant’s Opinion for Traditional Food of Khao yam

Judgements	Fully agree	Agree	Do not agree	Do not agree at all
I consume Khao yam because it is economical	26 (20%)	93 (71.5%)	11 (8.5%)	0
I find Khao yam tasty	48 (36.9%)	78 (60%)	4 (3.1%)	0
I believe that it is beneficial and healthy	74 (56.9%)	46 (35.4%)	10 (7.7%)	0
I think it is tastier than Kaomok	6 (4.6%)	51 (39.2%)	68 (52.3%)	5 (3.8%)
I think that it keep me satiated	16 (12.3%)	54 (41.5%)	60 (46.2%)	0

Source: Own calculation.

Moreover, we found that 46.2 percent of participants were “do not agree” that it keep them satiated, while 41.5 percent of them were “agree” that it keep them satiated. If we sum percent of “fully agree” and “agree” it will be 53.8% of participants were think that it keep them satiated (Table 5).

In the following example, the two variables are “gender” and “Participant’s Opinion for Traditional Food of Khao yam”. According to Table 6, the result of Chi-Square test shows that there is significant difference between genders in terms of which participant’s opinion in all of the judgments.

Table 6. Chi-Square Test between Gender and The Opinion for Khao yam

Gender	Participant’s Opinion for Traditional Food of Khao yam				Sig.
I consume Khao yam because it is economical					
Male	Strongly agree	Agree	Do not agree		0.009*
Female	6	53	6		
I find Khao yam tasty					
Male	Strongly agree	Agree	Do not agree		0.001*
Female	16	49	0		
I believe that it is beneficial and healthy					
Male	Strongly agree	Agree	Do not agree		0.002*
Female	30	25	10		
I think it is tastier than Kaomok					
Male	Strongly agree	Agree	Do not agree	at all	0.012*
Female	0	26	34	5	
I think that it keep me satiated					
Male	Strongly agree	Agree	Do not agree		<0.001*
Female	0	40	25		
Female	16	14	35		

*p=0.05

Source: Own calculation.

The same result can also be interpreted to mean that there is statistically significant

difference between the consumption of Khao yam by individuals because “consumed Khao yam because it is economical” (p=0.009), “finding Khao yam tasty” (p=0.001), “believing it is beneficial and healthy” (p=0.002), “thinking it is more tasty than another food” (p=0.012) and the judgment “thinking it keep me satiated” (p<0.001), depending on type of gender that they are male or female.

Table7. Chi-Square Analysis between Income and The Opinion for Khao yam

Income level	Participant’s Opinion for Traditional Food of Khao yam			Sig.	
I consume Khao yam because it is economical					
	Full agree	Agree	Do not agree		
<6,000-8,000฿	17	63	11	0.074	
8,001->12,000฿	9	30	0		
I find Khao yam tasty					
	Full agree	Agree	Do not agree		
<6,000-8,000฿	38	49	6	0.040*	
8,001->12,000฿	10	29	0		
I believe that it is beneficial and healthy					
	Full	Agree	Do not agree		
<6,000-8,000฿	50	36	5	0.165	
8,001->12,000฿	24	10	5		
I think it is tastier than Kaomok					
	Full agree	Agree	Do not agree	at all	
<6,000-8,000฿	6	36	49	0	0.002*
8,001->12,000฿	0	15	19	5	
I think that it keep me satiated					
	Full agree	Agree	Do not agree		
<6,000-8,000฿	6	35	50	0.001*	
8,001->12,000฿	10	19	10		

*p=0.05

Source: Own calculation.

Street food consumption are popular among young men [26][32][4], because of the affordability and availability of street foods among individuals who are students, early workers and traders who are not able to make their own food at home. Atinkut et al., also stated in his study conducted in Thailand that Thai people more likely love to eat street food than in a luxurious restaurant [5]. In addition, Consumers nowadays are very much concern of general food safety risks including environmental, health, and food safety concerns [17][22]. Since, Khao yam comprises different ingredients from different vegetables and fish sauce, Khao yam are considerably a healthy food for the most of the consumers. However, there is no specific consideration on the part of consumers in terms of hygienic preparations.

According to the result of Table 7, Chi-Square test shows that there is a significant difference between the incomes in terms of participant's opinion in judgments number two, four and judgment number five.

The same result can also be interpreted in terms of mean that there is statistically significant difference between the consumption of Khao yam by individuals because "finding Khao yam tasty" ($p=0.040$), "thinking it is tastier than Kaomok" ($p=0.002$) and the judgment "thinking it keep me satiated" ($p=0.001$), depending on level of incomes.

However, the result shows that there is no significant difference between income in terms of which participant's opinion of the judgments number one and three. In other word, the result can be interpreted in terms of their mean that the level of incomes has no significant difference for opinion of the judgments "consumed Khao yam because it is economical" ($p=0.074$) and "believing it is beneficial and healthy" ($p=0.165$).

Street foods offer affordability for most of the consumers regardless of income level [26][28].

CONCLUSIONS

Khao yam is a traditional food of southern Thailand and also known as Nasi Kerabu in northern Malaysia, holding an important place as a symbol of breakfast food at the particular region. In this study, Khao yam consumption of those living in the three province border of southern Thailand in different ages, level of education, level of income and different homelands were investigated. Base on the findings demographic factors as well as income and gender cannot be considered as strong determinants to determine the behavioural pattern of the consumers towards Khao yam. Availability of khao yam nearby houses with affordable price has a huge impact on the consumption behaviour of the respondents.

The perfect response from the respondents when asked about the availability of Khao yam nearby their homes was one of the

highlights of the recent study. This indicates that Khao yam selling in particular region is continuously growing. However, availability of data from related studies were seems invisible. This can be a variation for many researchers and policy makers out there to widen their experiments scoping the Khao yam food business sector.

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