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Factors affecting the selection of Kadazandusun ethnic foods among students of Universiti Malaysia Sabah, Malaysia

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Abstract

Ethnic food refers to food originating from a specific ethnic group. The study identifies the knowledge and factors in Kadazandusun ethnic food selection among students at the Universiti Malaysia Sabah (UMS). A total of 410 students from Universiti Malaysia Sabah were recruited as respondents through the snowball method. This quantitative study used questionnaires to collect data. The closed-ended questionnaire has four parts: demographics, knowledge, factors affecting food selection, and Kadazandusun ethnic food consumption intention. Data were analyzed using descriptive statistics and presented as frequencies, percentages, and mean values to address the study aims. In this study, 46.8% of the respondents had low knowledge (scale of 0–50) about Kadazandusun ethnic food. As factors that influence food selection, the health factor with an average value of $\bar{x}=3.39\pm 1.095$ received a neutral response toward agreeing compared with the convenience factor ($\bar{x}=3.17\pm 1.086$), taste/sense of food ($\bar{x}=3.12\pm 1.170$), price ($\bar{x}=3.17\pm 1.134$), and habit ($\bar{x}=2.55\pm 1.164$). Therefore, awareness and ethnic food selection factors among students are still low. A mechanism that can promote ethnic food, especially among IPTA students, for sustainability, information dissemination, and consumption of traditional ethnic food, is needed so that it does not disappear.

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1. Introduction

Food, in addition to providing energy and nutrients, fulfills the basic needs for the continuation of life. The choice of food, especially ethnic food, plays a role in individual living because it is a symbolic marker of ethnicity in addition to symbolizing the level of relationships, representing social status, defining group characteristics, and celebrating important events and festivals (1,2). Ethnic food is inherited, and specific ethnic group has culture, traditions, and symbols. The awareness and experimentation of ethnic foods are gaining attention because of international trade, globalization, migration, and the growing field of tourism (3).

Food selection is a complex process because it is also influenced by sensory food (e.g., taste, smell, and texture) (4,5) and non-food factors such as physical (e.g., geography, season, economy, food technology, location of purchase, and food availability), social (e.g., religion, social class, and knowledge about food), physiological (e.g., heredity, allergies, therapeutic diet, reception, and food requirements) (4,6), and finally informational factors (4). Food is an essential element to continuing living; there is a recent trend of trying out other ethnic foods that have cultural values and is seen as appreciating the ethnic and cultural specialties in addition to giving satisfaction to those who try ethnic foods (7).

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The largest ethnic groups in Malaysia are the Malays, Chinese, and Indians, and each ethnic group has its food that symbolizes their ethnic uniqueness. Food from the three ethnic groups has different cooking methods and is often eaten by other ethnic communities, for example, the famous Malay ethnic food such as *Nasi Lemak* (8,9). Nevertheless, the Malaysian community still lacks exposure to ethnic minority foods (10), mainly ethnic food from Sabah and Sarawak.

In this study, Kadazandusun ethnic food such as *Hinava*, *Tuhau* (wild ginger), *Butod* (Sago grub), *Busou*, *Pinasakan*, and *Bambangan* (seasonal wild mango fruit) is being studied as this ethnic represents the largest population in Sabah, and some of the ethnic popular dishes are already categorized as heritage food (11,12). However, ethnic food is still less known and eaten by most of the Malaysian community because it is usually only found at *Tamu* markets or during the festive season in Sabah (12,13). The knowledge of ethnic food is usually spread through word of mouth, hands-on activities, observation, and consumption of ethnic food (14). Previous studies have examined ethnic foods from the perspective of knowledge, awareness, and food intake (15,16). However, few studies have focused on traditional food, especially among young adults in Sabah. Therefore, this study aimed to identify the knowledge of ethnic Kadazandusun food and food selection factors among students at the Universiti Malaysia Sabah.

2. Food Selection Factors of Traditional Food

Food selection is a combination of many biological and anthropological factors that interact in a complex and variable manner and influence food choices (17). Food selection is complicated because it can be influenced by food and non-food elements (4,18,19), conscious or unconscious decisions made at purchase or consumption, and any point in between (20,21). Psychological factors such as motives and emotions also have a significant influence on determining food choices among consumers (20). Selection factors are classified as personal, socio-economic, educational, biological, physiological, psychological, cultural, religious, regional, extrinsic, and intrinsic (22). In this study, the food selection factors evaluated were health (23,24), convenience (25,26), food sense (5,27), price (24,28), and habit (29,30).

3. Material and Methods

This quantitative study used questionnaires as research instruments modified and adapted from several studies (10,14,31,32). The questionnaire has four sections representing demographics, knowledge, factors influencing selection, and ethnic food consumption intentions.

The questionnaire survey was conducted online (i.e., Google Forms) and through face-to-face methods for 4 months (i.e., July to October 2019). Purposive and snowball sampling methods were used (33), and the inclusion criteria for respondents include non-Kadazandusun ethnicity and experience and knowledge of Kadazandusun food.

To facilitate the sampling of study respondents, the questionnaire was written in Bahasa Malaysia and English, and 410 undergraduate and postgraduate students of Universiti Malaysia Sabah in Kota Kinabalu, Sabah, took part in this survey. The sample size was determined using the sampling table method (34). Through the pilot study, the reliability of the questionnaire was at $\alpha = 0.819$, which is at a satisfactory level and can be used in research. To analyze the data obtained for the knowledge section, each correct answer was given 1

point. The overall scores were converted into 100 points and analyzed using table score knowledge (Table 3). Descriptive statistics (frequency, percentage, and mean value) was used to analyze demographic and food selection factors (33).

4. Results and Discussion

The findings explain the background of the respondent, knowledge level, respondent's score, and an explanation of the Kadazandusun ethnic food selection factors, which consist of health, convenience, sense of food, price, and habit.

4.1. Demographics

As shown in Table 1, most of the respondents were male ($n = 268$, 65.4%). Based on the frequency, the group aged 20–29 years consisted of 173 (42.2%) respondents, followed by the group aged 30–39 years, with 165 (40.2%) respondents. By contrast, age over ≥ 50 years was the lowest among the 3 (0.7%) respondents. In this study, 117 respondents were in their fourth year ($n = 117$, 28.5%), and 83 (20.2%) were still in the first year. As regards the age of the respondents, the group aged 20–29 years and 30–39 years were categorized as young adults and adults, respectively (35–37), and respondents aged ≤ 19 years can be categorized as teenagers (38).

Table 1. Demographics.

Items	(n = 410)	Frequency	%
Gender	Women	142	34.6
	Men	268	65.4
Age	≤ 19	49	12.0
	20–29	173	42.2
	30–39	165	40.2
	40–49	20	4.9
	50–59 and above	3	0.7
Year level	1	83	20.2
	2	107	26.1
	3	103	25.1
	4	117	28.5
Ethnics	Malay	124	30.2
	Chinese	46	11.2
	Indian	119	29.0
	Others	121	29.5
Monthly expenses	RM 100–500	298	72.7
	RM 501–1000	86	21.0
	RM 1001–1500	17	4.1
	RM 1501–2000	7	1.7
	> RM 2001	2	0.5

As shown in Table 1, the Malay ethnic group ($n = 124$, 30.2%) had the highest number of respondents, followed by other ethnic groups (i.e., Bajau, Brunei, Melanau, Iban, and Murut) composed of 121 people (29.5%). The least number of respondents were ethnic Chinese ($n = 46$, 11.2%). Monthly expenditure was categorized into five (25), where is 298 respondents (72.7%) had the highest expenditure of RM100–500, and the lowest was \geq RM2001 ($n = 2$, 0.5%).

The results showed that gender differences play a role in deepening or showing interest in traditional food (7,11,39). Primary school girls showed more interest in learning about traditional food than boys (39). Women more positively accept traditional food than men (7). In addition, gender plays a role in the selection of traditional food, where men prefer purchasing a la carte, whereas women choose healthier foods such as *Kimchi*, *Bab* (boiled rice), *Jun* (rice gruel), *Guksu* (noodles), and *Mandy* (dumplings) (7).

Age factors can also affect knowledge and food intake (16,43). Students aged <19 years in the high school prefer *Emcheong* and *Han-gwa* (sweet food category), whereas college students choose *Bab* (boiled rice), *Tang* (soup), and *Guksu* (noodles). In comparison, respondents in their 30s have different food choices (i.e., *Bab*, *Tang*, and *Guksu*) from those in their 40s (i.e., *Gu-I* [roast] and *Jeon* [pan-fried food] with seasoning, and those in their 50s choose *Korean* and *Jang* (sauce and paste) (7). Meanwhile, the introduction of traditional food for people aged 30–35 years in the Klang Valley, Malaysia, focuses more on rice, side dishes, and desserts. In comparison, the group aged >36 focused on rice, desserts, and side dishes (40).

Ethnic background and education (i.e., formal or informal) play essential roles in knowledge about other ethnic foods where individual and community perceptions differ because of diverse demographic and cultural backgrounds (7,41). In addition, financial factors affect knowledge and food intake, especially for Kadazandusun ethnic food. Most respondents allocate RM100–500 for food in a month, limiting the food selection. An example can be seen in other country, where individuals choose the type of food based on their financial ability, such as the purchase of *Bab*, *Tang*, and *Guksu*, whereas individuals who earn approximately W1,000,000 (RM3,343) a month compared with those who earn W5,000,000 (RM 16,715) where they can afford *Korean* and *Jang* (7).

4.2. Knowledge level of the respondents

Table 2 reveals that respondents had a low knowledge with a score of 0–50 on the Kadazandusun ethnic food questionnaire (n = 192, 46.8%). Compared with the group with high knowledge with a score of 75–100, 96 (23.4%) of 410 respondents had low knowledge.

Table 2. Level of knowledge of Kadazandusun ethnic food.

Level	Score	Frequency (n = 410)	%
Low/unsatisfactory	0-50	192	46.8
Average	51–74	122	29.8
High/satisfactory	75–100	96	23.4

Figure 1 shows the frequency and percentage of each question answered correctly or incorrectly, accounting for the total number of 12 questions, including six questions on associating the name of the food with the picture given, two questions on identifying the name of the raw material used by the Kadazandusun ethnic group, and three questions on identifying cooking techniques and dish naming.

In this study, a high number of respondents answered 8 of the 12 questions correctly. The respondents could identify Kadazandusun ethnic food based on pictures, namely, *Tuhau*, *Bambangan*, *Butod*, and *Hinava* (Q1, Q2, Q3, and Q5) and the main ingredients such as *Tuhau* and *Bambangan*, which are often used in Kadazandusun ethnic dishes (Q7, Q8, Q9, and Q10)

where $\geq 50\%$ of the respondents answered correctly (Figure 1). In Q3, 356 (85.6%) respondents could identify *Butod* as a Kadazandusun ethnic food based on the picture given, followed by Q9 with 316 (77.1%), Q2 with 309 (75.4%), Q10 with 293 (71.5%), Q1 with 259 (63.2%), Q5 with 254 (62%), Q8 with 242 (59%), and Q7 with 216 (52.7%).

Figure 1 also shows $\geq 50\%$ of the respondents could answer only Q4, Q6, Q11, and Q12. In Q12, 268 (65.4%) respondents failed to identify the name of the dishes "*Busou ikan*" based on the raw materials used, followed by Q11 with 257 (62.7%), Q6 with 222 (54.1%), and Q4 with 220 (53.7%).

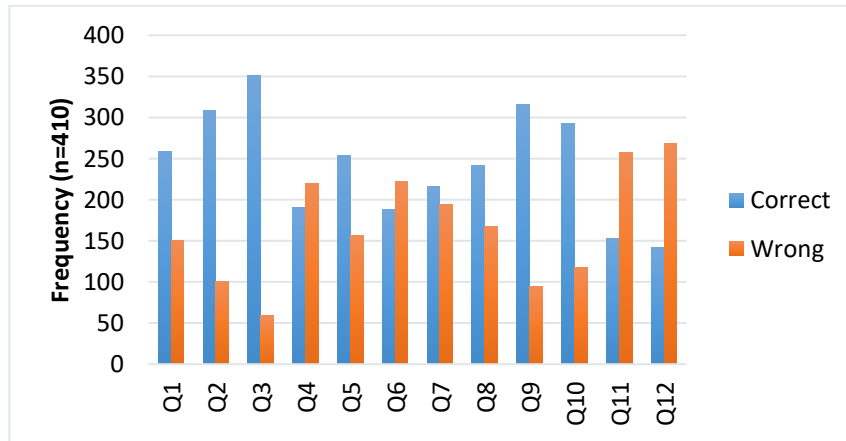


Figure 1. Kadazandusun ethnic food knowledge.

In this study, respondents have low knowledge of Kadazandusun ethnic food. Of 10 questions, more than 50% of the respondents could not answer Q4, Q6, Q11, and Q12. The question requires respondents to identify the names of Kadasandusun ethnic food dishes such as "*Busou Ikan*" and "*Pinasakan*" based on pictures and the names of foods based on the raw materials used. The respondents are unable to identify dishes based on pictures or descriptions of the main raw materials in the dish. The overall score shows a 50:50 score distribution on knowledge, with 46% of the respondents showing low/unsatisfactory knowledge of Kadazandusun food and ingredients. Owing to a lack of awareness or showing little interest in particular ethnic foods (i.e., Kadazandusun food), have similarity to previous studies (40,42) reporting that limited knowledge on preparation and lack of exposure may curtail individuals in learning traditional food.

It is also noted, factors that affect knowledge include ethnicity, gender, and age demographics of the respondents. This is in line with the findings of a previous study (39), stating that primary school students have a low knowledge score regarding traditional food, which is closely related to a lack of interest in it.

4.3. Selection factor

Selection factors include health, convenience, sense of food, price, and habit. The mean of each factor (Table 3) was the highest, i.e., health ($\bar{x} = 3.39 \pm 1.095$), followed by convenience ($\bar{x} = 3.17 \pm 1.134$) and price ($\bar{x} = 3.17 \pm 1.086$). The sensory factors of food ($\bar{x} = 3.12 \pm 1.170$) and habit ($\bar{x} = 2.55 \pm 1.164$) had the lowest mean.

Table 3. Selection Factors.

Factors	Mean \pm Std. Dev.
Health	3.39 \pm 1.095
Convenience	3.17 \pm 1.086
Food sensory	3.12 \pm 1.170
Price	3.17 \pm 1.134
Habit	2.55 \pm 1.164

*Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Table 4 explains the mean value and frequency of each selection. Each factor has three or five questions. Most respondents, on average, chose “neutral” for all selection factors, which shows that they generally chose the middle side between agreeing and disagreeing.

Respondents gave a “neutral” response to Q1 (\bar{x} = 3.36 \pm 1.215), Q2 (\bar{x} = 3.23 \pm 0.953), Q4 (\bar{x} = 3.52 \pm 1.003), and Q5 (\bar{x} = 3.30 \pm 1.099). Q3 has the highest mean value (\bar{x} = 3.53 \pm 1.176), showing that 131 respondents agree with the statement “*Butod* has a high protein value,” and only 28 strongly disagreed with this statement.

In contrast to the convenience factor, of five questions, four showed that the respondents chose “neutral” in Q1 (\bar{x} = 3.40 \pm 1.124), Q3 (\bar{x} = 3.13 \pm 1.035), Q4 (\bar{x} = 3.27 \pm 1.027), and Q5 (\bar{x} = 3.20 \pm 1.126) for “*Kadazandusun* traditional food facility.” Only Q2 was related to the ease of getting traditional *Hinava* food at a restaurant or workplace (\bar{x} = 2.83 \pm 1.120), in which 131 people choose “neutral” and 123 people disagreed that traditional *Hinava* food is easy to find in stores.

Table 4. Details of health and convenience factor questions.

Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean \pm Std. Dev.
	1	2	3	4	5	
1. Health						
Q1 Tuhau and Bambang are nutritious	36	67	102	125	80	3.36 \pm 1.215
Q2 Tuhau and Bambang help me become healthy	13	71	172	115	39	3.23 \pm 0.953
Q3 Butod has a high protein value	28	51	103	131	97	3.53 \pm 1.176
Q4 Bambang has a high fiber content	14	45	145	126	80	3.52 \pm 1.033
Q5 Bambang has a high vitamin and mineral content	34	46	149	125	56	3.30 \pm 1.099
2. Convenience						
Q1 Bambang pickles are very easy to prepare	20	69	128	113	80	3.40 \pm 1.124
Q2 Hinava dishes can be found in restaurants/shops close to where you live or work	46	123	131	74	36	2.83 \pm 1.120
Q3 Butod and Bambang pickles are easily available at the tourist market or roadside stalls	19	97	148	104	42	3.13 \pm 1.035
Q4 Hinava and Tuhau did not take long to prepare	20	64	161	114	51	3.27 \pm 1.027
Q5 Tuhau is very easy to cook	30	73	154	90	63	3.20 \pm 1.126

Table 5 shows that under the food sensory factor question, respondents chose “neutral” for Q1 ($\bar{x} = 3.36 \pm 1.075$), Q3 ($\bar{x} = 3.03 \pm 1.216$), and Q4 ($\bar{x} = 3.12 \pm 1.188$). In Q2 ($\bar{x} = 2.96 \pm 1.200$), 132 respondents chose “neutral,” whereas 92 respondents disagreed with the statement that “*Hinava* has good food presentation.”

For the price factor, respondents chose “neutral” for Q1 ($\bar{x} = 3.28 \pm 1.080$), Q2 ($\bar{x} = 3.13 \pm 1.035$), and Q3 ($\bar{x} = 3.09 \pm 1.287$). Q1 had the highest mean value, in which 132 respondents chose “neutral” and 121 agreed with the statement “*Bambangan* pickle is not expensive.”

The last selection factor was a habit factor, where respondents chose to disagree with Q1 ($\bar{x} = 2.45 \pm 1.172$), Q2 ($\bar{x} = 2.71 \pm 1.206$), and Q3 ($\bar{x} = 2.48 \pm 1.115$). Q1 had the lowest mean value, where 131 respondents disagreed with the statement “I always eat Kadazandusun ethnic food,” and 97 strongly disagreed with this statement.

Table 5. Details of food sensory factors, prices, and habits.

Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean \pm Std. Dev.
	1	2	3	4	5	
3. Food sensory						
Q1 <i>Bambangan</i> smells good (i.e., smells sweet)	23	54	151	116	66	3.36 \pm 1.075
Q2 <i>Hinava</i> has good food presentation	54	92	132	82	50	2.96 \pm 1.200
Q3 <i>Hinava</i> is delicious to eat (i.e., sour, and spicy taste)	68	47	147	102	46	3.03 \pm 1.216
Q4 Fried <i>Butod</i> has a good texture (i.e., crispy)	53	51	157	92	57	3.12 \pm 1.188
4. Price						
Q1 <i>Bambangan</i> pickle is not expensive	20	80	132	121	57	3.28 \pm 1.080
Q2 <i>Butod</i> is cheap	29	77	148	124	32	3.13 \pm 1.035
Q3 Buying <i>Bambangan</i> pickle is worth it	69	48	137	89	67	3.09 \pm 1.287
5. Habit						
Q1 I always eat Kadazandusun ethnic food	97	134	104	46	29	2.45 \pm 1.172
Q2 <i>Bambangan</i> pickles are familiar to me	70	122	119	56	43	2.71 \pm 1.206
Q3 <i>Bosou</i> resembles the food that was eaten as a child	93	117	134	44	22	2.48 \pm 1.115

In summary, of the selection factors, namely, health, convenience, food sensory, price, and habit, most of the respondents chose “neutral” in giving their opinion to four factors; however, respondents disagree with the statements on habit factor in the consumption of Kadazandusun ethnic foods such as *Bambangan* and *Busou* pickles. In addition, the respondents did not have experience consuming this food during childhood because the respondents were from various ethnic groups other than the Kadazandusun ethnic group; thus, they could not give an opinion on their consumption experience. In addition, the expense factor of ethnic food was affected by the spending point of view of the respondents, i.e., they spend RM100–500 per month, which is >50% of the total amount.

The findings of the intake factor can be linked to the opinion that the younger generation needs more knowledge and skills on traditional food owing to a lack of interest in learning it and factors such as identifying raw ingredients, preparation method, lack of exposure during traditional food manufacturing because food preparation takes a long time, knowledge transfer gap between generations (old and young), and the ease of obtaining food traditional already prepared and sold in stores or online. All these factors contribute to limitations on the skills and knowledge of the younger generation regarding traditional food (40,42).

5. Conclusions

Nearly half of the respondents had difficulty recognizing Kadazandusun ethnic foods dishes and their ingredients. As mentioned in the introduction, some Kadazandusun foods are already listed as part of heritage food. It represents a part of Sabah food identity where various ethnicities in Sabah reside, such as Kadazandusun, Bugis, Brunei, Bajau, and other ethnic minorities. The results showed a low awareness of traditional food, which may create an issue of the sustainability of traditional food, especially those already listed as heritage food. Selection factors such as health, convenience, food sensory, price, and habit were perceived by most of the respondents as neutral, which means that they were unable to agree on the statements under four factors, especially on the habit factors showing that the respondents were not familiar with ethnic food, which corresponds with the level of knowledge.

This study is limited to demographic data such as age and ethnic background, which might bias the knowledge and perception of Kadazandusun food. Further studies including personnel working in and outside the university area, including districts in Sabah such as Kota Kinabalu, Tawau, Sandakan, Papar, Kudat, and Kota Belud, are warranted to obtain more valuable information.

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Author Contributions

This article was co-written by A.Md.R., who is responsible for the introduction, materials and methods as well as organizing the entire writing of the article. While Dg.K.A.S. contributed to the identification of Kadazandusun ethnicity. S.I. contributed to the discussion and conclusion section, and S.C.W contributed to statistical data and discussion results.

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Institutional Review Board Statement

Permission and ethical review are 'not required' as this study does not use animal experiments.

Conflicts of Interest

This research has no conflict of interest.

References

1. Ma G. Food, eating behavior, and culture in Chinese society. *J Ethn Foods*. 2015;2(4):195–9.
2. Van Esterik P. Celebrating ethnicity: ethnic flavouring an urban festival. *Ethnic Groups*. 1982;4(4):207–28.
3. Verbeke W, Poquiqui Lopez G. Ethnic food attitudes and behaviour among Belgians and Hispanics living in Belgium. *Br food J*. 2005;107(11):823–40.
4. Eertmans A, Baeyens F, Van Den Bergh O. Food likes and their relative importance in human eating behavior: review and preliminary suggestions for health promotion. *Health Educ Res*. 2001;16(4):443–56.
5. Steptoe A, Pollard TM, Wardle J. Development of a measure of the motives underlying the selection of food: the food choice questionnaire. *Appetite*. 1995;25(3):267–84.
6. Conner MT. Understanding determinants of food choice: contributions from attitude research. *Br food J*. 1993;95(9):27–31.
7. Ha D-H, Kwon M-Y. Awareness and knowledge on Korean traditional food among the residents in Gyeongju & Pohang area. *Culin Sci Hosp Res*. 2009;15(2):17–30.
8. Shahrim M, Karim A, Lia CB. Food Image , Satisfation and Behaviorall Intentions : The case of Malaysia ' s Portugese Cuisine. *Int CHRIE Conf Track*. 2011;13.
9. Kim KO. Re-orienting cuisine: East Asian foodways in the twenty-first century. Vol. 3. Berghahn Books; 2015.
10. Ting H, Tan SR, John AN. Consumption intention toward ethnic food: determinants of Dayak food choice by Malaysians. *J Ethn foods*. 2017;4(1):21–7.
11. Ramli AM, Zahari MSM, Halim NA, Aris MHM. Knowledge on the Malaysian food heritage. *Asian J Qual Life*. 2017;2(5):31–42.
12. Regis P, Baptist JJ. Food Heritage of Sabah: A Cultural Perspective. Department of National Heritage, Ministry of Information, Communications and Culture Malaysia; 2012.
13. Edris S. Bambangan di Tamu Donggongan antara daya tarikan pengunjung [Internet]. Utusan Borneo Sabah. 2018 [cited 2018 Mar 27]. Available from: <https://www.pressreader.com/malaysia/utusan-borneo-sabah/20170223/281509340955195>
14. Sharif MSM, Zahari MSM, Nor NM, Muhammad R. The importance of knowledge transmission and its relation towards the Malay traditional food practice continuity. *Procedia-Social Behav Sci*. 2016;222:567–77.
15. Ayib S. Pengetahuan dan persepsi terhadap makanan tradisional etnik Dusun Lotud dalam kalangan golongan belia di Daerah Tuaran. Universiti Malaysia Sabah; 2016.
16. Hamzah H, Ab Karim MS, Othman M, Hamzah A, Muhammad NH. Challenges in sustaining the Malay Traditional Kuih among youth. *Int J Soc Sci Humanit*. 2015;5(5):472.
17. Nestle M, Wing R, Birch L, DiSogra L, Drewnowski A, Middleton S, et al. Behavioral and social influences on food choice. Blackwell Publishing Ltd; 1998.
18. Choe JYJ, Kim SS. Effects of tourists' local food consumption value on attitude, food destination image, and behavioral intention. *Int J Hosp Manag*. 2018;71:1–10.
19. Pearcey SM, Zhan GQ. A comparative study of American and Chinese college students' motives for food choice. *Appetite*. 2018;123:325–33.

20. Babicz-Zielińska E. Role of psychological factors in food choice—a review. *Polish J Food Nutr Sci.* 2006;15(56):379–84.
21. Vabø M, Hansen H. The relationship between food preferences and food choice: a theoretical discussion. *Int J Bus Soc Sci.* 2014;5(7).
22. Herne S. Research on food choice and nutritional status in elderly people: a review. *Br Food J.* 1995;
23. Brunstø K, Grunert KG, Fjord TA. Consumers' food choice and quality perception. Vol. 77. MAPP, Center for markedsovervågning, -vurdering og-bearbejdning til ...; 2002.
24. Leung G. News and views: ethnic foods in the UK. *Wiley Online Libr.* 2010;35(3):226–34.
25. Brunner TA, Van der Horst K, Siegrist M. Convenience food products. Drivers for consumption. *Appetite.* 2010;55(3):498–506.
26. Wales M-E. Understanding the role of convenience in consumer food choices: a review article. *SURG J.* 2009;2(2):40–8.
27. Januszewska R, Pieniak Z, Verbeke W. Food choice questionnaire revisited in four countries. Does it still measure the same? *Appetite.* 2011;57(1):94–8.
28. Furst T, Connors M, Bisogni CA, Sobal J, Falk LW. Food choice: a conceptual model of the process. *Appetite.* 1996;26(3):247–66.
29. Ha J, Jang SS. Perceived values, satisfaction, and behavioral intentions: The role of familiarity in Korean restaurants. *Int J Hosp Manag.* 2010;29(1):2–13.
30. Mak AHN, Lumbers M, Eves A. Globalisation and food consumption in tourism. *Ann Tour Res.* 2012;39(1):171–96.
31. Pieniak Z, Verbeke W, Vanhonacker F, Guerrero L, Hersleth M. Association between traditional food consumption and motives for food choice in six European countries. *Appetite.* 2009;53(1):101–8.
32. Zhu Q, Li Y, Geng Y, Qi Y. Green food consumption intention, behaviors and influencing factors among Chinese consumers. *Food Qual Prefer.* 2013;28(1):279–86.
33. Chua YP. *Kaedah Penyelidikan-Kaedah dan Statistik Penyelidikan-Buku 1.* Kuala Lumpur: McGraw Hill Education; 2006.
34. Krejcie R V, Morgan DW. Determining sample size for research activities. *Educ Psychol Meas.* 1970;30(3):607–10.
35. Noor SM, Zakaria NA, Shahril NM, Hadi HA, Zahari MSM. Pulut Kuning in Malay society: The beliefs and practices then and now. *Asian Soc Sci.* 2013;9(7):29–40.
36. Petersen PE, Baez RJ, Organization WH. *Oral health surveys: basic methods.* Fifth. World Health Organization; 2013.
37. WP SE, SA M, Ningseh T. Customers' satisfaction among urban and rural public health clinics in state of Selangor, Malaysia. *Malaysian J Public Heal Med.* 2010;52–97.
38. Tamam E, Idris F, Tien WYM, Hamzah A, Hamzah R. News media socialization and ethnic tolerance among youth in malaysia. *SURG J.* 2009;2(2):2009;2(2):40-8.
39. Gang M-S, Chyun J-H. A study on the perception and the knowledge of the Korean traditional food in the elementary schoolchildren of Incheon. *J Korean Soc Food Cult.* 2006;21(2):107–15.
40. Ramli AM, Sapawi DKA, Noor HM. Uncovering the food heritage based on age differences. *Environ Proc J.* 2020;5(14):211–8.
41. Kapelari S, Alexopoulos G, Moussouri T, Sagmeister KJ, Stampfer F. Food heritage makes a difference: The importance of cultural knowledge for improving education for sustainable food choices. *Sustainability.* 2020;12(4):1509.

42. Sharif MSM, Nor NM, Zahari MSM, Muhammad R. What makes the Malay young generation had limited skills and knowledge in the Malay traditional food preparation? *Procedia-Social Behav Sci.* 2015;202:152–8.