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OPEN ACCESS
Received: 1.8.2022
Revised: 1.10.2022
Accepted: 26.1.2023
Published: 27.2.2023

Slovak Journal of Food Sciences

Potravinarstvo Slovak Journal of Food Sciences
vol. 17, 2023, p. 96-109
https://doi.org/10.5219/1793
ISSN: 1337-0960 online
www.potravinarstvo.com

Food taboo and dietary habits among low-income people in Kedah, Malaysia

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ABSTRACT

Food beliefs and taboos about certain foods influence the use and consumption of food in the household. Today, especially in rural areas, some people believe certain foods affect health. This practice has resulted in the non-optimized intake of some food categories. As a result, it is not easy to diversify the types of food for daily diet. This study aims to investigate the beliefs and convictions of rural communities in Kedah regarding certain foods that may influence health. This study also identified the pattern of food intake among residents in rural areas of Kedah State following the belief that some foods can affect health. This study focuses on the rural areas of Kedah State, which include Kubang Pasu, Baling, Pendang, Alor Setar, and Kuala Muda districts. A total of 225 farmers in the rural areas of the selected districts were selected using stratified random sampling. The data were analyzed using SPSS 25 and food intake results. The results of the study show that low-income residents in rural areas of Kedah believe that some foods have an impact on health. A total of 37.11% believe that coffee, carbonated drinks, fresh milk, and low-fat milk cause headaches, stomach aches, heartburn, and nausea, followed by 18.66% who admit that spicy foods such as mutton, beef, and durian cause headaches, high blood pressure and skin problems. The impact of the food taboo has resulted in an overall food consumption rate below 29.9 in households of low-income residents in rural areas in Kedah State. The study's findings suggest that the Malaysian Ministry of Health should develop nutrition and health awareness programs and activities for the rural population. At the same time, there is a need for a comprehensive restructuring of the curriculum and syllabus by addressing the need for healthy eating as early as primary school so that nutrition and health awareness can be embedded in early childhood education.

Keywords: Food taboo, Dietary habits, Low-Income People, Rural Area

INTRODUCTION

Food taboos among communities are inevitable. This is because these food taboos are long-standing. Rural communities are no exception to this practice. This indirectly affects food consumption at the household level. Based on the conceptual framework of UNICEF Food-Care Health, it is explained that cultural norms, taboos, and beliefs contribute to the cause of nutritional deficiencies in households **[1]**. This is because of poor nutrition practices, especially in poor households. Indirectly, this situation has a major impact on household food security status.

Food taboos or beliefs are influenced by domestic eating habits and passed down from generation to generation. Traditional values, customs, and beliefs shape every cultural society and there are consequences if they are ignored or disregarded. A food belief has a long history and is a tradition and norm accepted and embraced by members of society **[2]** food taboos can mean a certain knowledge among family members as well as the obligations and obligations that come with different subjectivities **[3]**. Food beliefs are classified as either permanent or temporary. Permanent food beliefs arise from religious prohibitions, but temporary food beliefs arise from life circumstances **[4]**. This situation tends to reflect a culture where food taboos are imposed in favour of certain groups - the strongest or dominant group, to the detriment of those already vulnerable or marginalized. While food taboos are embedded in community health beliefs, the latter reflects the values associated with a

particular activity or practice. Health beliefs encompass various attitudes, perceptions, and values from different health knowledge sources. Another difference is how health beliefs are formed and maintained in a community. Taboos involve the co-evolution of practices within the framework of social power structures **[3]**. Food taboos are known in almost all human societies as institutionalized rules regulating certain foods' consumption **[5]**. They begin early in an individual's life and may undergo changes throughout life, some to a significant degree, others only when necessary to accommodate external forces **[6]**. Rochow **[7]** defined a food taboo (or ban) as a deliberate avoidance of food for reasons other than a simple aversion due to food preferences. Food taboos can indicate the specific knowledge of certain household members and the responsibilities and roles associated with certain subjectivities. In this way, the awareness and practice of taboos may be most evident within the subgroups most involved in their preservation **[8]**. In addition, people's food taboos are determined by values, attitudes, beliefs, and some environmental and religious circumstances resulting from tradition, culture, and contacts. Food values represent the norms or principles that the individual or group holds about the desirability of food, which (in most cases) is not necessarily related to nutritional value **[6]**. Iradukunda **[9]** explains that food taboos are traditional rules and practices for food selection, preparation, and consumption. The practices are inherited from generation to generation, along with cultural elements through parents, tribal leaders, or influential power holders. At the same time, food taboos are also seen as a way to strengthen the identity and culture of certain communities. At the same time, Oni and Tukur **[10]** stated that there is a relationship between a low level of formal education and adherence to food taboos. Uneducated women are more likely to adhere to food taboos than educated women. Since the proportion of women without formal education in the community is high, indirectly, the practice of taboos in the community is also high. Penafiel et al. **[11]** explained that the belief in taboo eating habits is caused by (i) individuals' mental and physical health status, (ii) lack of knowledge about healthy eating, and (iii) negative attitudes towards different dishes. At the same time, socio-cultural constraints (conflicts in the family, lack of knowledge about nutrition education, competition for food in the family) regarding different diets are also an obstacle to proper food intake. Food taboos also prevent the intake of protein-rich foods such as eggs and meat in the Vihiga district, especially among young children and women of reproductive age **[12]**. In Nigeria, certain species, such as marine and freshwater snails, are strictly protected by some cultures. These foods must not be touched, killed, or eaten **[13]**. Steyn et al. **[14]** found that eating behaviour in African countries is influenced by many factors such as culture, poverty, income, socio-economic level, colonialism, access to goods and services, taboos, and others. This has a direct impact on household eating habits. The study's interesting findings by **[15]** show that the abstinence from eating protein foods practised 20 years ago persists today. This directly harms children under 2 years of age and women of childbearing age who are vulnerable to protein-energy malnutrition. Das **[16]** stated that according to a study in India, ignorance, poverty, and illiteracy are the most important factors explaining false beliefs or misconceptions about food that are directly linked to malnutrition in the population. At the same time, there are also religiously based prohibitions on food. Smith, et al. **[17]** explained that there are also restrictions on food intake in the Christian community. This group avoids certain foods (such as meat and other animal products) during Lent. Similarly, the Catholic community, which fasts on Friday, avoids eating animal products and alcohol on Friday to remember Jesus' crucifixion, but eating fish is allowed on that day.

This situation affects household food habits, especially among low-income people. Nanua, & Mbogoh **[18]** explain food taboos that could negatively affect the dietary behaviour of families. The study by **[4]** shows that meat, eggs, and chicken are avoided in the Karbi tribal area of Assam, India, as it is believed that these foods are spicy and would cause stomach upset and increased bleeding during menstruation. A survey of pregnant women from Maduras conducted by Diana et al. **[19]** found that squid, prawns, pineapple, cabbage, and cold water/ice cream were pregnant women's most common forbidden foods. Squid, prawns, skate, and octopus were taboo for pregnant women of all gestational ages. These types of seafood were considered dangerous during pregnancy and childbirth. Shahar et al. **[2]** found in a study among elderly Malays in Mersing, Johor, that people avoid certain foods because they harm their health. Cucumbers, pumpkin, long beans, aubergine, mustard, leaves, swamp cabbage, coconut shoots, and okra are "cooling foods". In addition, a study by Chakona & Shackleton **[5]** found that 37% of women in the Kat River Valley, South Africa, reported one or more dietary practices that were shaped by local cultural taboos or beliefs. The most commonly avoided foods were meat products, fish, potatoes, fruit, beans, eggs, butternut, and pumpkin. Mohamad et al. **[20]** explained that Ethiopian women living in Addis Ababa avoid eating green chillies, organ meats, and dark green leafy vegetables because they believe these foods are associated with mythical elements.

Food taboo among women pregnancy aims to protect the health of mothers and unborn children **[9]**. Chakrabarti and Chakrabarti **[21]** stated that foods are avoided during pregnancy for the following reasons: (i) miscarriage, (ii) difficulty in delivery, and (iii) fear of abnormalities in the child. Chakrabarti and Chakrabarti **[21]** also found that rural women in West Bengal believed that papaya, parwar (patal), and pineapple would cause miscarriage. Most women admit that "pregnancy is a hot condition" Indirect consumption of hot food during this

period is dangerous for the mother. It can also cause a miscarriage. Tilahun et al. **[22]** also stated that the main reason why pregnant women follow food taboos in the Gedeo zone is due to fear of a large fetus and difficulty in delivery. This causes the birth process to be difficult and prolonged and leads to bleeding.

A study by Mengie et al. [23] found that 67.4% of the female farmers surveyed in eastern Ethiopia adhered to taboo practices in their food intake. This group consumes 67.4% of meat-based foods, followed by chicken eggs (66.2%), carbonated drinks (58.5%), pasta with sauce (56.4%), and milk (36.6%). The main reason this group consumes these foods is the fear of giving birth to a large, heavy child, fear of miscarriage, and difficulties in childbirth. Jones et al. **[24]** also found that women in Madagascar are forbidden to consume eel species during pregnancy, as this can lead to miscarriages or multiple births. At the same time, Middleton et al. **[25]** explain that taboo practices during pregnancy are also associated with childbirth, such as premature births, babies' weight, and children's neurocognitive development. Chakona and Shackleton **[5]** also explain the taboo of eating certain foods among women with the belief and concern that i) that the children will develop bad habits after birth; ii) that they will be born with a disease; iii) that birth will be delayed because certain foods cause women to deliver large babies, and iv) that they cause constant menstruation and infertility. Abu Bakar et al. **[26]** also find that the Mijikenda community is rich in many taboos, some likely influencing food choices. According to the Mijikenda culture, when a mother becomes pregnant with an infant or toddler, "the heat" of the unborn child burns the toddler when the child sleeps with the mother, resulting in severe emaciation. Based on previous studies, many researchers focus more on food taboos in pregnant women and limited discussion of food taboos among low-income people. Therefore, this study aims to identify the food taboo among low-income people and examine the impact on dietary habits in Kedah, Malaysia.

MATERIAL AND METHODOLOGY

Samples

This study focuses on five rural areas in Kedah, Malaysia (Figure 1). A total of 225 low-income people were selected as respondents using stratified random sampling for the studies. The questionnaire was divided into three sections A, B, and C. Section A contains information on the demographic characteristics of the respondents, such as gender, age, marital status, occupation, household size, etc. Section B contains information on the possession of livelihood assets among vulnerable persons. Finally, Section C contains information on food consumption to support respondents' food security based on the Malaysian Food Pyramid.

Figure 1 Study of Location.

The questionnaire contains different questions, including continuous data, a five-point Likert scale, and open-ended questions. The survey was conducted with the help of local research assistants under the guidance of the researchers, and the questionnaire was prepared in the native Malay language (Malay). The survey was conducted

in the form of a face-to-face interview with selected low-income people in selected areas. The researchers visited each respondent to count the number of households so that each household had an equal chance of being selected, and then randomly selected the houses. SPSS Statistic Version 25 was used to examine the data. Food taboos were reported as descriptive data expressed as mean. Summarising the data collection and analysis, the data is presented in Figure 2. The pattern of food consumption was then approximated using the approach of **[27]** in Figure 3.

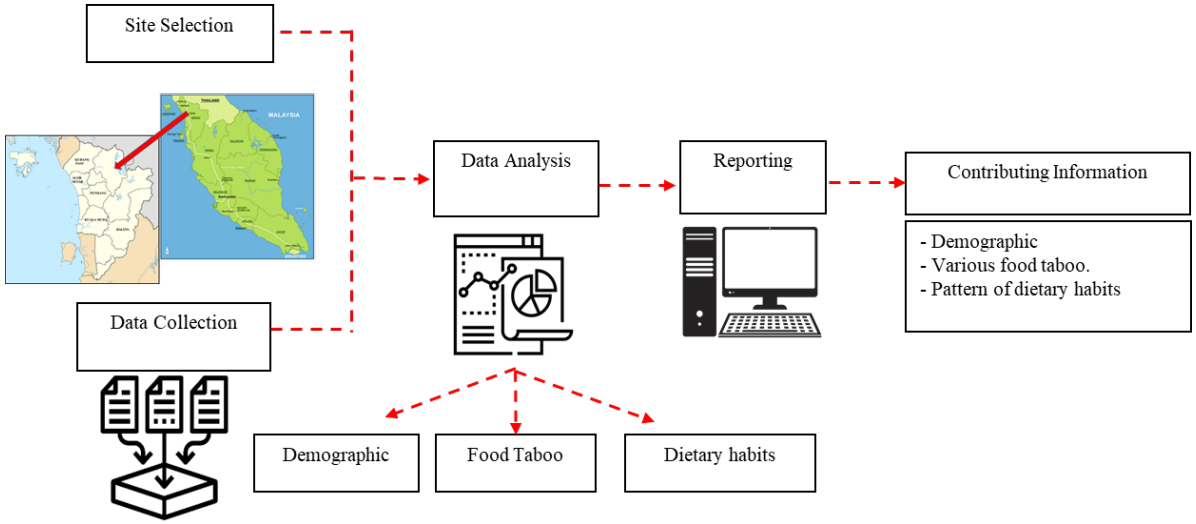

Figure 2 Diagram of data collection and analysis proces.

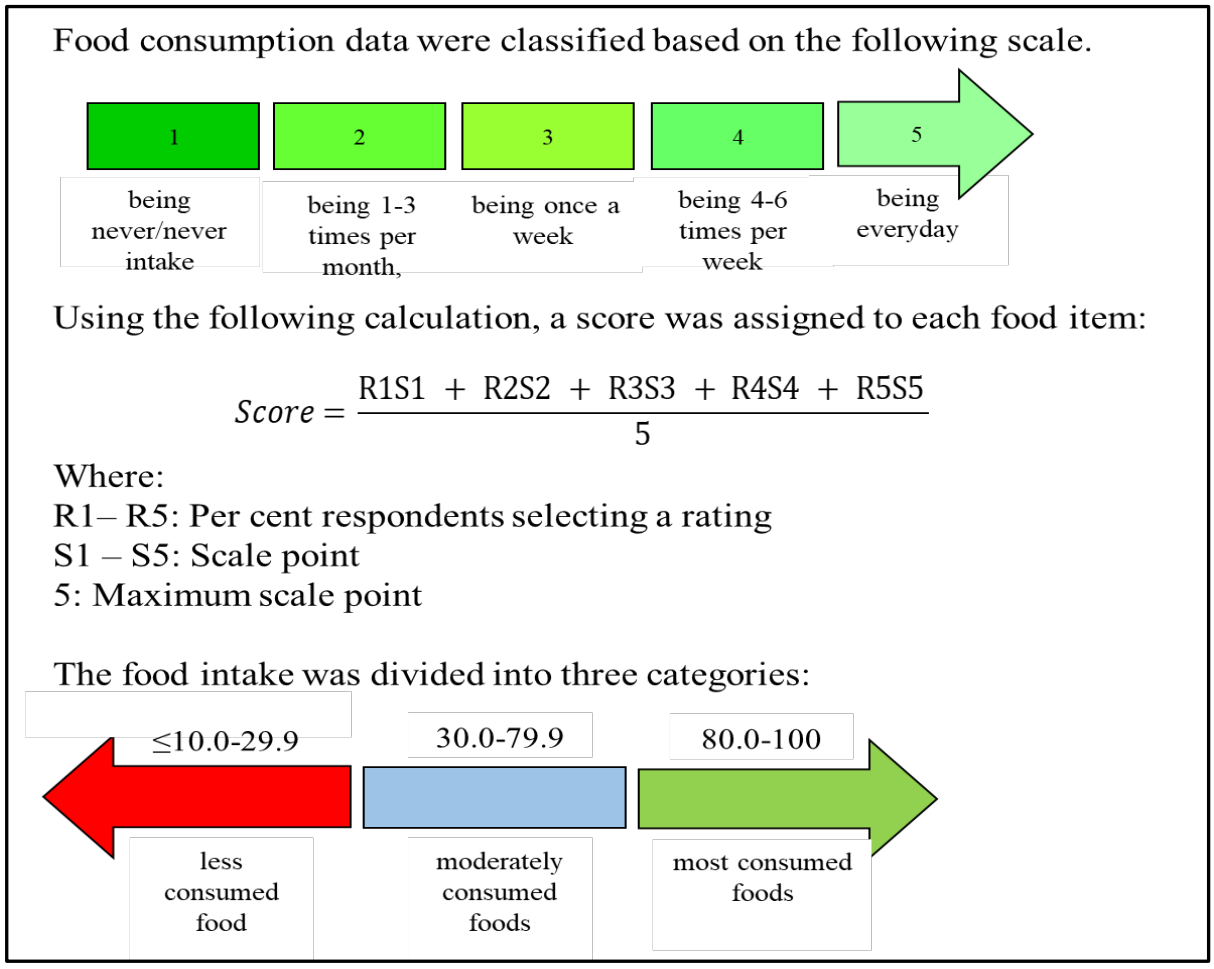

Figure 3 Food consumption calculation.

RESULTS AND DISCUSSION

The study finds out 0.89% of the respondents have no formal education, 8.0% have no formal education (religious school), and 57.3% have only some information from secondary school. 42% of the respondents had

completed primary education and 27.4% had completed primary education. 18.9% of the respondents do not attend school, and only 11.9% receive informal education (religious school). Figure 4 shows that overall the respondents have a low level of education and lack skills and training. The low level of education and lack of skills means that this group has no opportunity to diversify its sources of income. According to Economic Planning Unit (EPU) **[28]**, only 36.4% of household heads in Malaysia had a Sijil Pelajaran Malaysia (SPM) or equivalent educational qualification, while 36% had no qualification and 84.6% had only secondary education. Lack of knowledge makes it difficult to find a better job that improves socioeconomic status and, thus, the quality of life **[29]**. Due to their lack of education,89.9% of household heads work in marginal and semi-skilled jobs **[28]**. This situation has led to limited income, rising expenses, and cost of living being the main cause of the problem of food insecurity in low-income households with limited access to adequate nutrition **[30]**. Besides that, the distribution of respondents by marital status there is 83.11% of the total respondents are married, 0% are single, and 16.89% are widowed.

Respondents aged 43 to 52 years had the highest%age of responses (31.1%), followed by respondents aged 53 to 62 years (30.67%) and respondents aged more than 63 years (24.89%). In comparison, 12.44% of respondents were between 23 and 42 years old, and 0.89% were below 23 years old. The average age of the respondents was 54 years (Figure 5). In terms of land ownership, 48.0% of the respondents own less than 1.0 hectares of land, followed by 1.0 to 3.9 hectares (41.78%), 4.0 to 6.9 hectares (8.44%), and more than 7.0 hectares (1.33%). The average landholding is 1.48 hectares (Figure 6).

The distance from the home to the town is important in measuring the ability of low-income people to access food. The average distance for low income to get food in the city is about 8.56 km (Figure 7). However, food deserts also affect low-income households when the distance is more than 12 km **[31]**. The distance to access food will leave low-income groups exposed to food desserts. Sparks et al. **[32]** define food deserts as areas of high poverty (with a poverty rate of 20% or more) with little access to supermarkets. This is consistent with the USDA **[33]** definition, which states that areas of food dessert arise when numbers of low-income residents have little access to supermarkets or large grocery stores. Cordero et al. **[34]** also agree that food deserts are areas suffering from a lack of physical and social facilities, including a lack of access to food and high nutritional balance. USDA **[33]** also stated that areas of food deserts have little or no access to nutritious food. In short, an insecure food area is where households struggle to obtain sufficient and nutritious food from nearby supermarkets or convenience stores. Communities that have poor access to nutritious and sufficient food have the potential to contract these diseases Coveney & Dwyer **[35]** found that access to nutritious food is poor in rural areas. This is due to high food prices, limited food choices, high rates of diet-related diseases, and poor access to fresh and nutritious food **[36]**. At the same time, Rodriguez and Grahame **[37]** also reported that the transport factor is one of the barriers for low-income residents to get groceries as they do not have access to public and private transport and cannot afford the transport cost. According to the study, 92.44% of those surveyed own a motorcycle. This is followed by 62.67% of respondents who own a car. 16.6% of those surveyed stated that they owned a lorry/van. This shows that the low income in this area has no barrier to accessing food based on transportation.

In the electrical/household appliances category, 100.00% of the respondents owned a television, 88.0% owned a radio, 100.00% owned a gas cooker and 98.66% owned a refrigerator. Communication devices in this study are mobile phones and mobile phones with internet access. Figure 8 shows that 76.44% of the respondents owned a mobile phone.

The classification of standard of living of people in Malaysia is divided into three main categories, viz T20, M40 dan B40 (Table 1). The main purpose of this classification is to facilitate the planning, monitoring, and implementation of the program in a targeted manner according to the needs of each population category. Low-income households in the study were classified as poor because their income was less than MYR2499 compared to RM1941, the actual income of the low-income households in the studies. Meanwhile, the average monthly household expenditure of RM 1169.10 and RM 465.64, or 39.83% was spent on food and beverages. These results related to the finding by Arnawa et. al, **[38]** found in their study that the highest expenditure was on the consumption of cereals, especially rice, which accounted for 38.32% of the farmers' average expenditure on food consumption, followed by expenditure on the consumption of food of animal origin, which reached 26.40%. Expenditure on the purchase of fruits and vegetables ranked third.

Table 1 Poverty Line Income.

Decile Group		Income threshold (RM)
T20 the household earning the highest 20% of the total income of Malaysians	T2	>15,039
	T1	10,960-15,039
M40 households earning 41% to 80% of the total income of Malaysians	M4	8,700-10,959
	M3	7,110-8,699
	M2	5,880-7,099
	M1	4,850-5,879
B40 households with the lowest income of 40%	B4	3,970-4,849
	B3	3,170-3,969
	B2	2,500-3,169
	B1	<2,499

Note: Source: **[39]**, **[40]**.

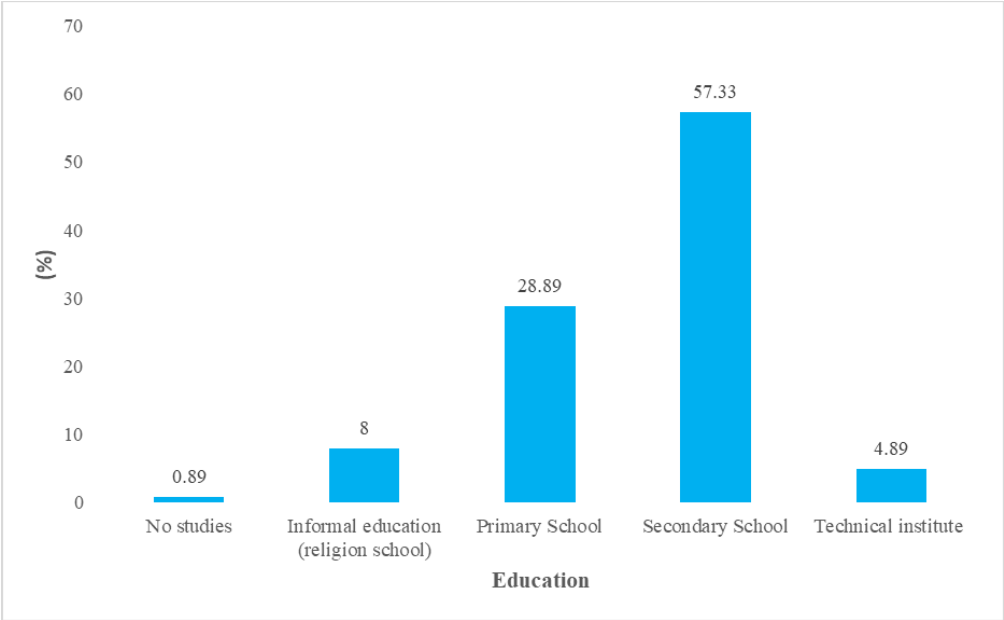

Figure 4 Education level.

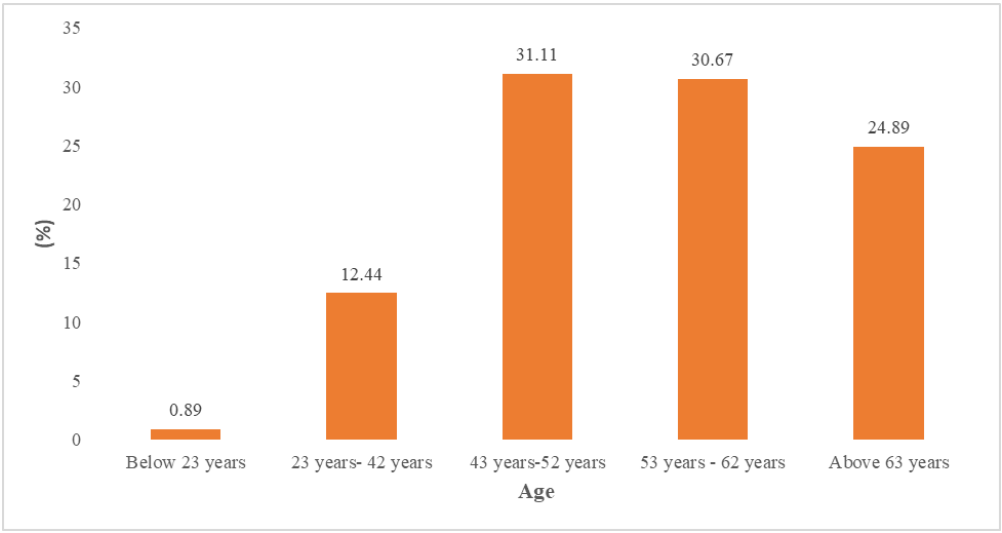

Figure 5 Age.

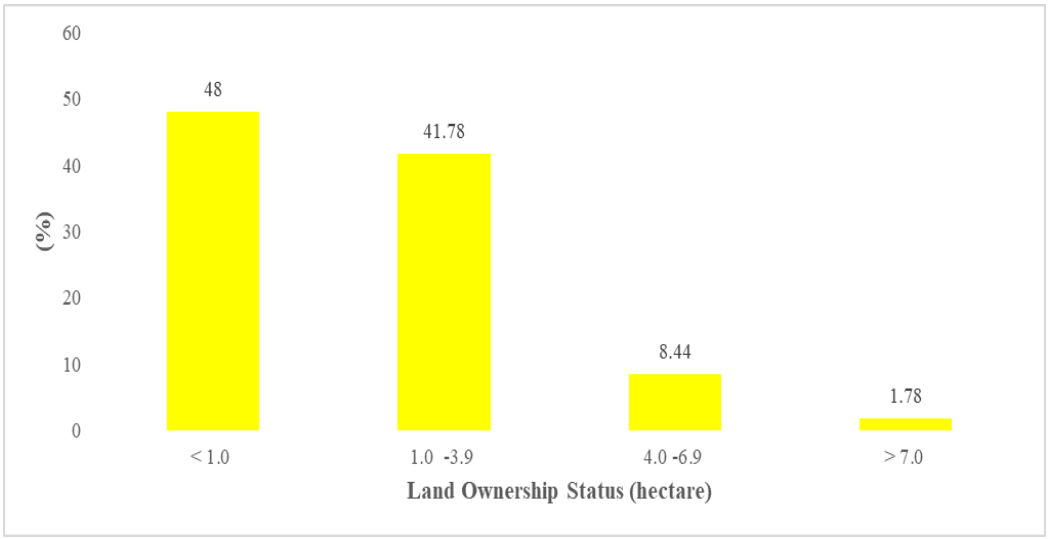

Figure 6 Land ownership status.

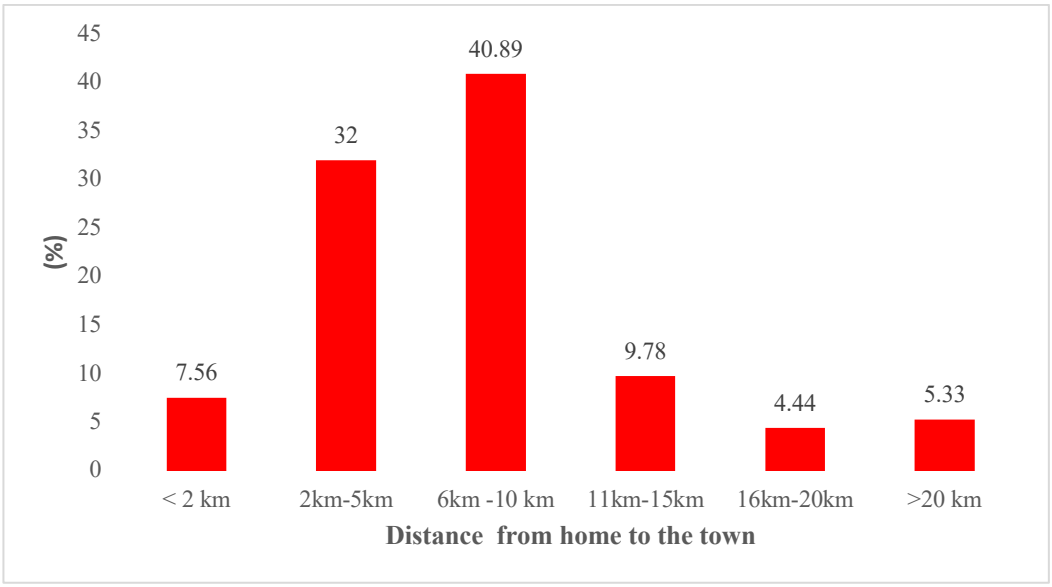

Figure 7 Distance from home to town.

Figure 8 Asset ownership.

Food Taboo Status Among Low-Income Group

This study found that rural communities in Kedah State still believe in taboos on certain foods. Practical and cultural factors are the main factors that lead to this belief still being practised. Adherence to this belief and taboo is difficult to separate in society as it is integrated into the daily life practices of this group. Although there is no study from a health perspective on the effects of eating certain foods on health, this belief is still maintained today. Food consumption also influences behaviour among consumers. Many complex and dynamic factors influence food choices and consumption, as this is closely related to each individual's personality **[41]**. In the context choose food, Arbit et al **[42]** identified five terms related to food, namely sacred, healthy, social, and vinegar. Regarding the sacred, food is closely associated with religious practices and rituals **[43]** Under the moral aspect, food refers to how food choices and eating habits have a positive or negative impact depending on the views of the individual **[44]**. When discussing health, we discuss food choices as the most important prerequisite for a healthy life **[45]**. While in terms of the social aspect of food, which reacts with potential food where it is shared, consumption is accelerated by the community **[46]**. Aesthetics refers to the experience of eating that connects pleasure with the consumption of food **[43]**. However, Gallagher et al. **[47]** also explained that attitudes, social norms, and behavioural control influence the intention to consume food. Attitude strongly influences intention, followed by social norms of behaviour control. This matter is directly related to the practice of taboo food in society. Brown **[48]** explains that social psychologists explain how feelings, thoughts, beliefs, intentions, attitudes, and goals influence behaviour in determining the actions of something. This matter is closely related to the selection and consumption of food in households. At the same time, food neophobia is seen as directly related to attitude and personality. Eertmans et al. **[49]** explain that neophobia can cause some people to avoid certain new foods and reinforce the reasons for different attitudes toward food choices. Neophobia is also a mechanism that protects people from physical harm but is also an obstacle to developing an appreciation for different foods **[50]**.

Table 2 clearly shows the tabooing of food among the low-income groups in the rural areas in Kedah State. The study classified tabooed foods into six main categories: cooling, windy, hot, spicy, itchy, and drinks. The study results show that 37.11% of this group do not drink coffee, carbonated drinks, whole milk, and low-fat milk. They believe these drinks cause headaches, stomach aches, indigestion, and nausea. This practice is also passed on to all their family members. Mutton, durian beef, is also taboo among this group. A total of 18.66% of rural dwellers in Kedah State believe these are spicy foods with health side effects. They believe they will get headaches, high blood pressure, and skin problems (enzymes) if they eat these foods. Similarly, chicken, red meat, seafood, and chicken eggs are classified as itchy foods and cause skin problems (enzymes) when eaten.

Rural communities in the state also believe that some foods, such as cassava shoots, bamboo shoots, yardlong beans, sprouts, groundnuts, and green beans, are classified as windy foods. When eaten, they cause a bloated stomach and nausea. The same goes for eating spicy foods like bamboo shoots, pineapple, and vinegar, which can cause heartburn, stomach pain, and miscarriage. Those with health problems such as numbness/pain in the joints rely on and avoid foods classified as cooling foods such as yardlong bean, star gooseberry, and sprouts. This situation clearly shows that the beliefs and practices of previous communities have been passed down through generations to the present day. Although there are no scientific studies on the effects of food on health, the community still holds on to the belief of the effects of food intake on health. This directly affects the pattern of food consumption in households. In addition, the constrained finances of the low-income group have directly limited food consumption in the household.

Table 2 Food Taboo among low-income people in a rural area, Kedah.

Classification	Food items	Reason for avoidance	age (%)
Cooling foods	yardlong bean, star gooseberry, sprouts	joint numbness/pain	2.66
Windy foods	cassava shoots, bamboo shoot, yardlong bean, sprouts, groundnut, green bean	windy stomach, nausea	5.33
Hot foods	mutton, beef, *durian*	headache, high blood pressure, skin problems (eczema)	18.66
Sharp foods	bamboo shoot, pineapple, vinegar	heartburn, stomach-ache	1.33
Itchy foods	chicken, red meat, seafood (e.g. prawns, prawns paste, mussels), egg chicken	skin problems (eczema)	5.34
Beverages	coffee, carbonated drink, fresh milk, low-fat milk	headache, stomach-ache, heartburn, nausea	37.11

Dietary Habits Among Low Income

Based on the research conducted, dietary habits among low-income groups in rural areas of Kedah State are classified into several major categories as shown in Table 3. The classification according to these categories aims to assess the dietary behaviour of this group. Indirectly, the form and type of food that has priority can be determined. At the same time, the consumption value for each food can be determined more precisely.

Table 3 clearly shows the dietary habits of the low-income groups in the study. For the vegetable category, vegetables that are close to homes, such as bamboo shoots, cassava shoots, and fiddlehead, are also the first choice of this group. However, this vegetable category has a low score of below 29.9. Vegetables available in the market, such as cabbage, choy sum, spinach, and yardlong beans, are also preferred by this group and consumed with a moderate score. Choy Sum has the highest score of 51.64 in the vegetable category compared to other vegetables. Consumption of herbs *(ulam*) is also high, with a score of 41.87. This group believes that taking herbs helps to increase the body's resistance. The results of this study agree with the study by Ballesteros et al. **[51]**, where a study among households in Argentina found that the average intake of fresh fruits and vegetables is very low, well below the levels recommended by the World Health Organization (WHO) and Dietary Guideline for Argentine Residents. The daily consumption of fruit and vegetables is significantly lower among low-income groups due to the lower level of education. However, this study also found that the consumption of fruit and vegetables increases with household income. This shows that the income factor plays an important role in the consumption of fruit and vegetables. The study by Mustafa et al. **[52]** in Bangladesh also stated that low-income groups are more likely to believe in taboo practices of eating vegetables and fruits in their daily diet. Up to 92% of the rural population of Bangladesh forego fruit and vegetable dishes on the daily menu. Most of the rural population is uneducated and does not believe in the importance of fruit and vegetables in their diet. They believe that rice is more important than vegetables

Low-income people in a rural area in Kedah, also consume chicken and chicken eggs as one of the protein sources in their daily diet, with a value between 39.38 and 42.13. This study is related to a study by Narimah et al. **[53]**. Nevertheless, meat consumption is low at 11.91. The reason for this is the high price of meat in the market. This situation led the group to prioritize staple foods for household needs. The study's results also show that this group consumes fruits such as apples, grapes, watermelons, and limes less. The score of 38.04 indicates moderate consumption of this food category. These results related to a study by Diehl et al. **[54]** also found that 50% of low-income residents in Jakarta and India consume chicken eggs, fish, meat, dairy products, and fruit, but only 20% of poor households due to the high prices of these foods.

The same is true for cereal and legume-based foods, where consumption is low at 26.04 to 27.55. The use of food supplements is also low among low-income groups in rural areas, with a score of 28.70. This is because this group is aware of the need for a healthy diet. Those who take herbs can substitute for taking supplements. Seafood such as squid, prawns, and crabs are also an option, but the consumption of these foods is moderate with a value of 35.52. The consumption of chub mackerel is the top choice of this group compared to other fish species, with a value of 78.48, followed by hardtail scad (36.09), slender sprat (34.12), and black skip jack (32.89). For the other categories of saltwater and freshwater fish, consumption is low at 29.9. A study by Djunaidah **[55]** explains that fish consumption is low due to a lack of public understanding and knowledge of the benefits of fish consumption. At the same time, the lack of facilities and infrastructure leads to this problem.

Meanwhile, for beverage categories, tea, coffee, and plain water have a high score (most consumed foods). Cultural factors and long-standing practices have led this group to continue to consider this beverage as their first choice. The study results also show that carbonated, whole milk and low-fat drinks are less popular among this group.

From the research, the average respondent in this study has an income below the prescribed poverty line of RM2449. This group is also classified as poor and vulnerable. This group is also entitled to zakat support from the zakat department under the category of *Asnaf* **[56]**. The low level of education has led this group to adhere to traditional practices and beliefs.

At the same time, the low-income groups in the rural areas of Kedah State also believe that eating certain foods impacts health. Although there is no scientific study on the impact of certain foods on health, this belief has become integrated into the lives of this group. In general, the dietary habits of this group are low, with food intake focused on low prices. This group places more emphasis on quantity than the quality of food. This situation is caused by limited income and ultimately affects the body's nutritional needs. This situation critically affects children's growth and leads to stunting in children **[57]**. In this study, many low-income people still believe in the taboo of eating. It is not easy to change people's eating habits and beliefs. 37.11% believe that coffee, carbonated drinks, and fresh and low-fat milk cause headaches, stomach aches, heartburn, and nausea. This situation influences people's dietary habits regarding these drinks. In addition, people's low education also leads them to

still hold on to the taboo of food. It is very difficult to break the food taboo in communities because this issue is deeply rooted in life, and it is difficult to leave the practice.

Moreover, the rising prices of commodities also affect the food habits of this group. Wardle et al. **[58]** stated a strong relationship exists between knowledge of nutrition and food consumption. The analysis results show that knowledge about nutrition and food intake depends on the education level and occupation type. Indirectly, this statement explains that the level of education plays an important role in determining food intake at the household level.

Table 3 Food consumption score among low-income people.

Food categories	Less consumed food (≤10.0-29.9)		Moderately consumed foods (30.0-79.9)		Most Consumed Foods (80.0-100.0)	
	Food item	**Score**	**Food item**	**Score**	**Food item**	**Score**
Vegetables	Cassava shoots	24.62	Yardlong bean	38.92		
	Water spinach	24.89	Sprouts	42.31		
	Star gooseberry	25.24	Spinach	43.38		
	Fiddlehead	25.24	Cabbage	45.78		
	Bamboo shoot	26.85	Choy Sum	51.64		
			Herbs (ulam)	41.87		
Chicken & Egg			Chicken	42.13		
			Egg Chicken	39.38		
Meat	Beef	25.78				
	Mutton	11.91				
Fruits	Seasonal fruits	29.79	Fruits	38.04		
Beverage	Carbonated drink	21.07			Tea	89.43
	Full cream milk	18.49	Condensed milk	36.63	Coffee	84.18
	Low-fat milk	20.09			Plain water	93.51
Bean/grain	Bean Curd	26.66				
	Groundnut	27.55				
	Green Bean	26.04				
Healthy product	Healthy product	28.70				
Seafood			Seafood (Prawn, Squid, Crab)	35.32		
Saltwater fish	Sardine	28.80	Hardtail Scad	36.09		
	Japanese Threadfin Bream	28.61	Slender Sprat	34.21		
	Yellowtail Scad	24.53	Blackskip Jack	32.89		
	Promfret	18.31	Chub Mackerels	78.48		
	Mangrove Red Snapper	18.23				
	King Mackerel	18.04				
	Barramundi	16.98				
	Snapper	16.18				
	Grouper Fish	15.74				
	Hardtail Scad	36.09				
	Slender Sprat	34.21				
	Blackskip Jack	32.89				
Freshwater fish	Tinfoil Barb	21.15				
	Catfish	22.48				
	Gourami fish	22.84				
	Climbing perch	24.45				
	Channa Striata	24.63				
	Tinfoil Barb	21.15				

CONCLUSION

In general, the food consumption among low-income groups in the rural area of Kedah is less consumed, with a score below 29.9. This is due to poverty, culture, and high prices, which result in some foods not being included in the daily diet. At the same time, food taboos also influence dietary habits among that people.

In reality, many factors influence dietary habits, including climate, availability, religion, emotions, taste, economics, local agricultural practices, and traditions. Therefore, the task of changing food taboos is not easy. Changing dietary habits and beliefs is a complex process that could be achieved through consumer awareness and education. The study's findings have several implications for creating effective nutrition initiatives. The Ministry of Health should continue to promote healthy lifestyles, raise awareness and provide nutrition education. However, basic but effective nutrition techniques must be discovered and implemented carefully. These approaches could also be used to increase nutrition knowledge and awareness and motivate people to change their eating habits. Future nutrition policies should ensure the food consumption of low-income households by providing adequate supplies of staple and micronutrient-rich foods. To this end, policymakers should develop and implement an intervention to raise awareness and prevent malnutrition related to food consumption among children. Knowledge about food consumption should be emphasized more in the curricula, especially in preschool and primary school. In addition, policymakers, health authorities, program planners, and community leaders should work together to plan and implement effective interventions and other intervention programs for Malaysians, especially in low-income households, that include nutrition education and healthy food environments to promote healthy lifestyles.

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Funds:

This research was supported by the Ministry of Education (MOE) through Fundamental Research Grant Scheme FRGS (FRGS/1/2020/SS0/UUM/02/21).

Acknowledgments:

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Conflict of Interest:

The authors declare no conflict of interest.

Ethical Statement:

This article does not contain any studies that would require an ethical statement.

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