

Original Article

Away-from-home meals: an integral part of Malaysia's food environment

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Away-from-home meals have become an increasingly common part of the Malaysian diet, with the wide availability of hawker stalls, coffee shops, cafes, restaurants, and food delivery services catering to diverse tastes and budgets. This paper provides a narrative overview of the Malaysian context, based on relevant literature and policy initiatives. The growing eating-out practice is driven by urbanisation, lifestyle changes, limited time for home cooking, growing preference for convenience, and rising incomes. While eating out has become a social norm, its increased frequency raises nutrition and public health concerns. Local evidence shows that many commonly consumed hawker foods are high in sodium, sugar, and fat, while lacking healthful ingredients such as vegetables, potentially worsening Malaysia's already high burden of diet-related non-communicable diseases. Existing national policies and programmes, such as the Healthier Dining Programme, MyMeal, Healthy Cafeteria and Healthy Catering Trainings, provide nutrition and food safety criteria for healthier meal provision. However, their reach among informal food vendors remains limited, and data on consumer awareness and uptake are scarce. Strengthening and expanding these programmes to better include informal vendors is crucial to increasing the availability of healthier meals. Other opportunities include developing healthier reference recipes for commonly consumed hawker foods to guide reformulation, exploring meal-based nutrient profiling to inform meal selection, using digital nudges within food delivery platforms, and enhancing consumer education. There is also an urgent need for representative national data on away-from-home meals, including consumption patterns, perceptions, demand for healthier options, purchasing behaviours, and their contribution to overall diet and nutritional status.

Key Words: away-from-home meals, eating out, food environment, Malaysia, policy and programmes

INTRODUCTION

Eating away from home is common globally in both developing and developed countries, and it is becoming increasingly popular among Asian populations.^{1,2} The term away-from-home meals refers to foods prepared outside of the home and sold by both formal and informal food service establishments, such as restaurants, food courts, fast food chains, and hawker stalls, and including takeaway and delivery services for home, office, or indoor consumption.³

This paper provides a narrative overview of away-from-home meals within the Malaysian food environment. Relevant literature was identified through focused searches of the PubMed database, together with policy documents and official reports from relevant Malaysian government and organisational websites. Given the objective of providing a narrative overview rather than a comprehensive coverage, the search approach and selection of sources were guided by relevance to the Malaysian context.

INCREASING TREND OF EATING OUT IN MALAYSIA

The trend of eating out in Malaysia is evident by the steadily increasing household expenditure on food away from home over the past decades. Lee and Tang (2007) noted that from 1973 to 1999, spending on food away

from home rose from 4.6% to 10.9% of total household expenditures, while expenditures on food at home declined from 33.7% to 22.2%.⁴ More recent data demonstrate the continued trajectory of this trend. In 2022, spending on food away from home increased further to 15.3% of total household expenditures, whereas spending on food at home decreased to 16.3%.⁵ When this is examined in relation to total household food expenditure, expenditures in Malaysian households were nearly equal for food at home (51.6%) and food consumed outside the home (48.4%).⁶ In 2024, expenditure on food away from home by Malaysian households continued to increase, with 16% of total household expenditures allocated to dining out at restaurants, cafés, canteens, cafeteria, and eateries.⁷

Similar findings were also reported by both the 2014 Malaysian Adults Nutrition Survey and the 2020 Malaysian Food Barometer analysis of 2012-2014 data, which

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consistently indicate a high prevalence of meal consumption away from home.^{8,9} Over 64% of individuals consume at least one meal daily outside. The Malaysian Food Barometer also reported that 38.3% of meals were eaten out, rising to 47.5% when takeaways or delivered meals consumed at home were included.⁹ More recently, Mognard et al. (2023) found that Malaysia continues to record one of the highest rates of away-from-home meal consumption among Asian countries, with 40.6% of meals purchased outside the home (whether eaten out or eaten at home).¹⁰

Local studies further reaffirmed that having away-from-home meals has become a social norm across various demographic groups in the country.¹¹⁻¹³ Chinese residents, urban residents, and those with higher monthly household income spent more on away-from-home meals compared to their non-Chinese, rural, or lower-household-income counterparts.^{4,14-17} Millennials eat out more often than other groups.¹⁵ Eating out at the individual level occurs during working days and at the family level occurs during weekends.¹² Interestingly, government and semigovernment sector employees recorded a higher proportion of eating out than eating in (61% vs. 19%).¹¹ Among young adults, regardless of body weight status, most preferred outside meals three to four times per week,¹⁸ while a majority of adolescents had family meals away from home at least once a week at various food outlets.¹³

FOOD SERVICE ESTABLISHMENTS IN MALAYSIA

Malaysia's meals-away-from-home establishments can be grouped into several diverse types (Table 1),^{19,20,21} reflecting its multicultural environment that offers an abundance of different foods to suit diverse tastes and budgets. The majority of outside-home meals among Malaysian households primarily come from restaurants, coffee shops, cafés, and informal food vendors, such as street stalls, hawker stalls, and night markets, with these sources accounting for 92.6% of total expenditures on food away from home in 2022.²²

Street and hawker foods, known for their convenience and affordability, form an integral part of Malaysian eat-out culture. The term street food refers to ready-to-eat foods and beverages prepared and/or sold by vendors and hawkers, especially in the streets and other public spaces, markets, small eateries, and kiosks/stalls.²³ In some shopping malls, hawker stalls are better organised in food courts and with better facilities. Vendors from various ethnic backgrounds in Malaysia have been part of the street food scene since the early 1970s, contributing to a diversity of Malaysian ethnic dishes offered as street food.²⁴ These foods not only play a vital role in the cultural and social aspects of the country's food system but also contribute to food security by providing diverse, affordable food options to all income levels, supporting working populations and creating employment opportunities, particularly for low-income households.^{21,25}

Zainal Arifen et al. (2025) surveyed street foods nationwide and identified 820 different types commonly

Table 1. Main types of eating-out food establishments in Malaysia

Establishment	Description
Dine-in restaurants	A wide range of options are available, from cuisine-based restaurants, such as Malaysian, Chinese, Indian, Japanese, Korean, Vietnamese, Thai, European, and Middle Eastern, to fusion eateries, fast-food outlets, franchise restaurant chains, and fine-dining establishments, many offering air-conditioned comfort, standardised menus, and service charges.
Coffee shops ^{19, 20}	- Known locally as <i>kopitiam</i>, these are popular breakfast and brunch spots for diverse ethnic groups to gather, converse and preserve traditions through meals and rituals. - Mostly non-air-conditioned establishments operated by individual owners who sublet sections of their premises to others selling local food, thus featuring multiple local food vendors. Some are run by families across generations. - Offer a wide array of affordable local food, from breakfast staples like soft-boiled eggs, toast, and <i>nasi lemak</i> to dishes like <i>char kuey teow</i> and Hainanese chicken rice and a combination of local coffee and tea. The menus often reflect a fusion of Malay, Chinese, and Indian culinary influences.
Cafeterias/canteens	Facilities offering self-service food and drink options, often within larger institutions such as hospitals, schools, universities, and workplaces.
Hawkers/street food	- Kuala Lumpur City Hall categorises hawkers by location type, such as stands (secured), hawker centres, kiosks, night market (licensed), night market (unlicensed), food courts, and mobile hawkers.²¹ - Offering affordable street foods, ready-to-eat foods, and beverages in informal environments, with each ethnic community contributing its own flavours and specialities. - Hawker centres and food courts are usually large, communal dining halls with multiple food stalls offering diverse local dishes at affordable prices. They can be located in open-air or enclosed settings, including major shopping complexes, residential areas, and townships, and typically feature shared seating. - Popular among Malaysians across all income levels.
Cafes	Establishments focus on beverages and light snacks.
Mamak restaurants	- Originated from Indian-Muslim influences. - Usually in bustling urban areas, they serve a variety of affordable meal options; popular items include <i>roti canai</i> (flaky, layered flatbread served with curry or dhal), <i>nasi kandar</i> (steamed rice served with a variety of curries and side dishes), and <i>teh tarik</i> (sweet, frothy milk tea). - Often open 24/7.

available across Malaysia. Nearly half (46.7%) were local cooked dishes, followed by local snacks and desserts (28.9 %), processed foods (11.3%), non-local cooked dishes (7.2%), non-local snacks and desserts (4.9%), and uncooked dishes (1.0%). Among these, rice- and noodle-based foods such as *nasi lemak* (rice cooked in coconut milk, commonly served with spicy sauce, anchovies, peanuts, hard-boiled eggs and cucumber), fried noodles, Penang-style *laksa* (rice noodles in a tangy tamarind-based fish broth), *char kuey teow* (stir-fried flat rice noodles with soy sauce, eggs, bean sprouts, and meat or seafood), and fried rice were the most common main meals, while the five most commonly available snacks were fried chicken, *keropok lekor* (deep-fried fish-based snacks made from fish paste and sago flour), satay, *takoyaki* (octopus-filled batter balls), and fried sausage. The five most common desserts were *apam balik* (thick folded pancake filled with crushed peanuts and sugar), varieties of cakes, doughnuts, ice cream, and banana fritters. In terms of preparation, deep frying and steaming were the two most frequent cooking methods.²⁶

In terms of eating time, meal consumption outside the home in Malaysia is not confined to normal mealtimes, as many food outlets, particularly 24-hour establishments such as mamak restaurants, operate around the clock. This availability has encouraged teenagers, late sleepers, and night workers to take their meals late at night or early in the morning.¹² A study on late-night eating-out behaviour among adults found that over two-thirds of the respondents ate out late at night one to two times a week.²⁷

Online food and meal ordering is another eating-out trend that was started during the COVID-19 pandemic when restrictions drove people to online food purchases. It has evolved into an essential alternative post-pandemic,²⁸ driven by strong demand for convenience, diverse food options, increased smartphone penetration, and social media influence.²⁹ Some of the major players include the third-party delivery apps GrabFood, foodpanda, and DeliverEat, with an average spend of about RM48 per order.³⁰ The number of users in the meal delivery market is expected to amount to 14.5 million by 2030.²⁹

DRIVERS OF THE GROWING POPULARITY OF MEALS AWAY FROM HOME

The high prevalence of eating outside the home has been closely linked to urbanisation,^{8,11} which has created a food environment with a high density of diverse and competitively priced food outlets located within short, accessible distances, thus increasing opportunities for dining out.^{9,11} Factors such as the increasing number of working mothers with limited time to cook, larger family sizes, and higher income levels also drive the practice of eating out.^{6,12} Larger households with three to six members were spending nearly half of their food budget on meals away from home, reflecting a shift from cost-saving home cooking to convenience-oriented eating.⁶ Among urban families, demanding work schedules and longer commuting times have further contributed to the preference for convenient, fast, and readily available meals to suit their busy lifestyle.^{6,12,31} Eating out has also become an increasingly common phenomenon in semiurban and rural areas, serving as a social norm and shared

activity for socialising and bonding, practised across households of varying socioeconomic backgrounds.^{6,32}

NUTRITIONAL VALUES AND PUBLIC HEALTH IMPLICATIONS OF MEALS AWAY FROM HOME

Several studies have examined the nutrient contents of common Malaysian hawker and street foods.³³⁻³⁵ About one-third of the main dishes surveyed exceeded the recommended limit of 2000 mg sodium/day. Popular dishes such as *char kuey teow*, noodles with curry or soy sauce gravy, and *laksa* (rice noodle soup dish with regionally distinct spiced broths) varieties from Penang and Perak were found to approach this level in a single serving. Processed foods frequently sold as street foods, such as *keropok lekor*, seaweed pickles, fried fish balls, fried crab meatballs, fried sausages, fried chicken with cheese, and fried chicken balls, were also high in sodium (605-805 mg/100 g).³³ These findings were consistent with results from the Malaysian Community Salt Survey, which identified commonly consumed away-from-home meals like *nasi lemak*, *roti canai* (flaky, layered flatbread served with curry or dhal), fried rice, fried noodles, and fried chicken as top high-sodium foods consumed among adults.³⁶

Desserts and snacks purchased from outside the home also tend to be high in added sugar. A study analysing 94 types of street food found that 93.3% of desserts, 34.5% of snacks, and 17.1% of main meals surveyed contained medium to high sugar levels (≥ 5 to >15 g/100 g), with sucrose the dominant form.³⁴ Local traditional cakes (*kuih*) were particularly sugar-dense, in line with findings from the Malaysian Adult Nutrition Survey 2014, which identified *kuih* as one of the top dietary sources of added sugar, second only to sugar-sweetened beverages.⁸ Regarding fat content, saturated fatty acids were the dominant type across all street food categories, especially desserts and deep-fried dishes.³⁵ Non-fried foods also often contain medium to high levels of saturated fatty acids due to the widespread use of coconut milk in many popular dishes, such as *nasi lemak*, glutinous rice with *rendang* (meat stewed in coconut milk and spices), gravies, *roti jala* (lacy net-like pancake made from flour, egg, coconut milk, water and turmeric) and local *kuih*. In addition to coconut milk, animal fats such as butter, processed meats, and cheese are also used in these street foods.³⁵ In a recent study analysing 118 food and beverage items commonly consumed by the population, Norizan et al. (2025) reported high levels of total sugars in traditional Malaysian desserts, *kuih*, and cakes.³⁷

Meals ordered through online delivery platforms are similarly high in sodium, sugar and fat. According to Lee (2023), fast food is significantly more popular (65%) than all other food options.²⁸ Fried chicken, burgers, and sugary beverages such as milk tea, bubble tea, and *teh tarik* (sweet, frothy milk tea) consistently dominate the most searched and ordered categories on delivery platforms like GrabFood.³⁸ Thus, the nutritional profile of many meals eaten away from home in Malaysia is generally characterised as high in sodium, sugar, and fat. Many of these foods also lack nutrition labelling, making it challenging for consumers to identify healthier options.

While these findings provide important insights into the nutritional composition and quality of commonly consumed away-from-home foods and meals, they do not reflect actual population-level intake, portion sizes, consumption frequency, or long-term dietary exposure. Available data quantifying the extent to which these meals contribute to Malaysians' overall diet, nutrient intake, and nutritional status remain limited.

Systematic reviews indicate that frequent consumption of away-from-home meals may contribute to increased intake of nutrients of public health concern, posing a challenge for the population to achieve the recommended dietary intake and increasing the risk of obesity and non-communicable diseases.³⁹⁻⁴¹ Existing local evidence indicates that frequent consumption of away-from-home meals is associated with higher intakes of sodium^{11,42} and sugar-sweetened beverages⁴³ and lower intake of vegetables⁴² in adults. Among adolescents, eating out was associated with poorer dietary quality and pattern,⁴⁴ and frequent family dining outside the home, particularly more than seven times per week, was associated with higher energy and fat intake.³¹ Furthermore, adolescents who frequently eat out tend to prefer fast food and are associated with excessive consumption of cereals, meat, poultry, and eggs, along with insufficient vegetable intake.⁴⁵ Kee et al. (2019) found that a higher density of fast-food outlets within close proximity in residential areas was significantly associated with overweight among children.⁴⁶

While the findings from these studies cited are consistent in indicating that frequent consumption of away-from-home meals is associated with poorer dietary quality, higher sodium intake, greater sugar-sweetened beverage consumption, and risk of being overweight, it is also important to note that most of them are derived from cross-sectional studies. This has made it challenging to draw conclusions about causality to adverse health outcomes. Particularly, it is unclear if eating out directly contributes to these outcomes or whether individuals who already have unhealthy dietary behaviours and lifestyle patterns are more likely to consume away-from-home meals frequently. Besides, several of the studies also relied on self-reporting of the frequency of eating out, which may be subject to misreporting. In addition, potential confounding from socioeconomic level, urban residence, occupation, time restrictions on meal preparation, food preferences, and other lifestyle behaviours have not been consistently accounted for across studies, which may also have an impact on the connections. In order to better understand the impact of away-from-home meal intake and health outcomes among the population, nationally representative and intervention studies are crucial.

Beyond the potential nutritional implications, the growing dependence on away-from-home meals also raises food safety concerns. Consumers are vulnerable to foodborne illnesses and poisoning that may arise from improper handling of food, utensils, or cooking equipment, as well as inadequate personal hygiene among food handlers.⁴⁷ As contamination can occur at any point along the food chain, from processing and production to preparation

and final distribution, food handlers are critical in ensuring food safety.⁴⁸

Food safety risks may also be exacerbated by Malaysia's tropical climate, where the ambient temperature can range between 21°C and 37°C. This, coupled with high humidity, creates favourable conditions for bacteria or foodborne pathogen growth, particularly when ready-to-eat hawker or street foods are exposed to time-temperature abuse. In addition, the rapid expansion of food delivery services introduces additional safety concerns. The complex interaction among food merchants, delivery riders, and consumers creates multiple connection points for potential cross-contamination.⁴⁹ For instance, contamination may occur when food is poorly packaged, leading to spills and cross-contact with unclean delivery bags and vehicle surfaces. It may also occur when raw and cooked foods are not properly separated during delivery. Cross-contamination risks may also be attributed to the deliverers' limited food safety knowledge and practices, as currently no mandatory food safety training is required for riders.⁵⁰

EXISTING POLICIES AND PROGRAMMES GUIDING THE FOOD ENVIRONMENT AND AWAY-FROM-HOME MEALS

Several initiatives have been implemented by the Ministry of Health and other organisations to foster healthier food environments and improve the nutritional quality and safety of meals consumed away from home. These policies, programmes, and regulatory frameworks primarily emphasise food safety, hygiene compliance, and nutrition promotion.

The food safety and hygiene aspects are principally guided by the Food Act 1983 and the Food Hygiene Regulations 2009.^{51,52} All food business operators must register and obtain operating licenses from the relevant authorities. Food service establishments and handlers are also required to adhere to hygiene requirements for safe food preparation, handling, and storage procedures to ensure food safety and safeguard public health. All food handlers must complete mandatory food safety training and receive antityphoid vaccinations to reduce the risk of contamination and foodborne illness.⁵² The Food Premises Grading Programme assesses the safety and hygiene levels of food premises based on such parameters as sanitation, pest control, and food-handler hygiene. Premises receive grades from A (excellent hygiene) to D (requiring immediate closure).⁵³ In addition, routine food safety inspections and monitoring activities are conducted by the Ministry of Health, including ready-to-eat food samples collected from food premises for microbiological testing for the presence of foodborne pathogens. Seasonal inspection operations, such as inspections of Ramadan bazaars, also strengthen compliance and reduce the risk of foodborne outbreaks.⁴⁹

In terms of nutrition-related policies and programmes, recognising that a substantial proportion of Malaysians regularly consume meals prepared outside home, the Ministry of Health has proactively incorporated key recommendations for dining out in the national food-based dietary guidelines. As the overarching policy, the guidelines outline 13 tips for choosing healthier options daily

when eating out or purchasing food from outside the home. These include portioning meals according to the Malaysian Healthy Plate concept, requesting smaller portions, choosing foods prepared using healthier cooking methods, limiting foods with high sodium content, requesting unsweetened or reduced sugar beverages, and avoiding misuse of free refills for sugary drinks.³

Several national programmes have also been implemented by the Ministry of Health to create supportive food environments, improve access to healthier meal options, assist consumers in identifying healthier meals when eating out, and, at the same time, build the capacity

of food service providers to offer such options. Some of the major initiatives include Healthier Choice Logo (Healthier Dining Programme, previously known as MyChoice); MyMeal; Healthy Cafeteria recognition; Clean, Safe, and Healthy food outlet (BeSS) recognition; and Healthy Catering Trainings (Table 2).⁵⁴⁻⁵⁸ These programmes share such features as integrating both nutrition and food safety components; free technical guidance; setting criteria for serving balanced meals with vegetables and fruits and limiting calories, sugar, and sodium; and requiring compliance with established food safety and hygiene standards. The Healthier Dining Programme and

Table 2. Initiatives promoting healthier meal options

Initiative	Description	Coverage & reach
Healthier Choice Logo (Healthier Dining Programme), previously called MyChoice Programme ⁵⁴	- Open to food and beverage chain restaurant/kiosk/cafe (franchise; fast food, or individual owned chain restaurant) that provides the same menu across all outlets. - Allowing food and beverage restaurant chains to display the tagged category Healthier Choice logo if the menu items meet specified nutrient criteria: - Food - Lower in calories category: ≤ 500 kcal/serving, balanced sources of carbohydrate, protein and fibre - Lower in calories and sodium category: ≤ 500 kcal/serving, ≤ 650 mg sodium/serving, balanced sources of carbohydrate, protein and fibre - Lower in calories and extra vegetable category: ≤ 500 kcal/serving and ≥ 1 serving of vegetable - Lower in calories and sodium, extra vegetable category: ≤ 500 kcal/serving, ≤ 650 mg sodium/serving, ≥ 1 serving of vegetable - Beverage (lower in sugar category): total sugar ≤ 5g/100ml - Voluntary implementation - Certification is valid for 2 years and must be renewed based on the latest nutrient standards.	The Healthier Dining Programme has progressively expanded its coverage across multiple food service providers in Malaysia, including chain restaurants, cafés, convenience stores, caterers, and airline food services. As of 2026, a total of 325 menus have been recognised under the programme, comprising 168 food items and 157 beverage items. The number of recognised menus has increased over time, from 41 menus in 2024 to 325 menus in 2026. However, the recognised menus remain largely concentrated among selected industry players, with limited evidence on the programme's reach among informal food vendors.
MyMeal programme ⁵⁵	- Recognition programme for complete meal sets based on the Malaysian Healthy Plate (Quarter-Quarter-Half) concept, served at an affordable price (RM6–8 or USD1.4–1.9). - Allowing food premises to display MyMeal certificate and logo for meal sets meeting certification criteria: must include one serving from rice/cereals/grains group, one serving protein from fish, poultry, eggs, meat, and legumes group, one serving of vegetables, and one serving of plain water (minimum 200 ml). Meals should provide 400–500 kcal and not be excessively salty, sweet, or oily. - Voluntary implementation. - Certification is valid for three years, and recognised outlets are listed on the Ministry of Health Nutrition Division website. Premises must score grade A in food safety inspections.	As of April 2026, there are a total of 393 MyMeal-recognised menus from 132 establishments across Malaysia. About 54% of the menus certified were from formal settings such as cafeterias in the Ministry of Health facilities, government agencies, universities, and institutions. ⁶⁴
Healthy Cafeteria Recognition Programme ⁵⁶	- Certification is granted to premises that meet criteria for food safety and quality and healthy nutrition: must achieve at least 86% in hygiene inspection scores, have no more than one food poisoning case in the past year, and comply with nutritional criteria that discourage the sale of highly processed, sugary, or high-fat foods. Items such as instant noodles, processed meats, preserved foods, carbonated drinks, and alcohol are prohibited. Participating cafeterias must also serve at least one vegetable dish, one type of fresh fruit, and plain water daily. - Supports participating food operators through free technical guidance and nutrition training. - Mandatory implementation for government sectors (in stages), including cafeterias/canteens in hospitals, institutions, health clinics, and governmental buildings; optional for non-government entities.	Currently, a total of 129 cafeterias across Malaysia have received the Healthy Cafeteria recognition, with the majority (approximately two-thirds) located within healthcare settings such as hospitals and health clinics. Coverage in community and non-health settings remains limited.

Table 2. Initiatives promoting healthier meal options (cont.)

Initiative	Description	Coverage & reach
Clean, Safe, and Healthy food outlet (BeSS) certification ⁵⁷	• Open to all food premises that provide food services with seating areas either inside or within the vicinity of the premises, such as restaurants/eateries/cafeterias/food stalls, school canteens, and kiosks, excluding seasonal vendors or premises that serve only alcohol. • The certification includes both food safety and nutrition components. Food premises must meet four main criteria: maintain clean premises, ensure food safety, provide healthier food choices, and promote suitable portion sizes. • Voluntary implementation. • Certified premises receive free technical guidance, official certification, and logo use. The certification is valid for 3 years.	As of April 2026, a total of 6,802 food premises across Malaysia have received BeSS recognition.
Healthy Catering Training ⁵⁸	• Aimed at food business owners and handlers from restaurants, eateries, cafeterias, school/workplace canteens, catering services, and food delivery operators. • Training focuses on healthy eating practices, preparation of healthy meals, and promoting healthier menu planning and cooking methods. • Voluntary participation.	Official data on programme coverage or reach are currently unavailable. However, programme targets have been set for 2025, aiming for 70% coverage in schools and 50% coverage in institutes of higher learning and training centres. ⁶⁵

MyMeal programmes, in particular, aim to raise consumer awareness and make healthier options more visible through logos for healthier menu that meets the Ministry of Health's criteria.

The professional organisations in the country, such as the Nutrition Society of Malaysia, the Malaysian Dietitians' Association, and the Malaysian Society of Body Composition, have also been playing key roles in promoting healthy eating and active living in the country through the Nutrition Month Malaysia initiative. This annual community-focused nutrition initiative delivers practical messages and guidance to the public on choosing healthier meals when dining out and urges the population to prepare healthy meals more often at home. These key messages and educational materials are disseminated through the initiative's community outreach activities in shopping complexes, media publications, and various social media platforms.⁵⁹

Other related programmes promoting healthier meals outside the home include the voluntary Healthy Meals in Schools Programme,⁶⁰ prohibition of the sale of unhealthy food and drinks in schools,⁶¹ and the Guidelines for Serving Healthy Meals During Meetings in workplace settings.⁶² A tax is in place for sugar-sweetened packaged beverages but not for local beverages prepared in eateries. To address this, the '1 teaspoon is enough, less is better, none is best!' campaign promotes reduced sugar use in beverage preparation across cafeterias, restaurants, and eateries nationwide.⁶³

POLICIES AND REGULATORY GAPS IN AWAY-FROM-HOME MEALS

The range of efforts introduced reflects the government's commitment and important progress in improving the nutritional quality of away-from-home meals. However, a closer examination of existing initiatives shows several challenges in achieving wider and more sustained impact. Many initiatives remain voluntary in nature and unevenly

implemented. Participation in such programmes as Healthier Dining Programme, MyMeal, Healthy Cafeteria Recognition, and Clean, Safe, and Healthy food outlet (BeSS) is encouraged through certification, free technical guidance, and promotional support. While this approach promotes engagement with the food service operators, it limits coverage and could pose challenges in promoting healthier meal options more widely. Many small food operators, especially those in the informal food service sector, such as hawkers and street food vendors, are not enrolled, thus reducing the reach and impact of these initiatives. This is evident from the coverage of food premises or menus certified under the Healthier Dining Programme and MyMeal programme (Table 2). The Healthy Dining Programme is open to food and beverage chain restaurants, kiosks, and cafe that offer standardised menus across all outlets, while approximately 54% of the menus certified under the MyMeal Programme (as of April 2026) were from formal settings such as cafeterias in the government sector, hospitals, universities, and institutions,⁶⁴ reflecting limited participation from informal food service providers in both initiatives. These providers of meals away from home should not be ignored, as populations from the middle and lower socioeconomic sectors frequent hawker and street food vendors. Similarly, the Healthy Catering Training, while packed with useful training content covering healthy eating practices, preparation of healthy meals, and healthier menu planning and cooking methods, remained a voluntary initiative targeting mainly food business owners and handlers from restaurants, cafeterias, school/workplace canteens, catering services, and food delivery operators.

Another concern is the inconsistency of nutrition criteria applied in these initiatives. For example, the Healthier Dining Programme logo certification consists of several categories. Using category of lower in calories as an example, it requires foods to contain ≤ 500 kcal per meal, with balanced sources of carbohydrates, protein, and fat,

but without specifying the serving size or quantity for these macronutrients. In contrast, the MyMeal programme applies similar criteria for energy and vegetables and encourages serving plain water but uses qualitative descriptions such as ‘not overly salty, sweet, oily or fatty’, which are subjective and open to interpretation. Restaurants applying for Healthier Dining Programme logo certification are also encouraged to display calorie information on menu or point of sale, introduce smaller portion sizes, make plain water available for free, increase the number of food items/beverages that have low-calorie content, redesign menus to increase the prominence of healthier options⁵⁴ However, the current guidelines provide limited details on what constitutes a ‘healthier option’, or a benchmark for ‘low-calorie content’. This highlights the need for clearer technical guidance and consistent nutrition benchmarks to strengthen implementation and consumer trust. In addition, there is limited monitoring of consumer awareness and uptake of these initiatives. Current indicators focus mainly on such outputs as the number of recognised menus, training sessions conducted, or the number of healthy cafeterias established.⁶⁵

The school food environment also deserves serious attention, as many children consume at least one meal a day at school, with many relying heavily on the meals sold in the school canteen. The Ministry of Education’s recent initiative to ban 12 categories of unhealthy foods and beverages in schools is a commendable step toward improving the food environment for children.⁶¹ However, effective implementation requires stronger enforcement and systematic monitoring, as the current restrictions are primarily based on circulars and guidelines rather than binding regulations. The issue of unhealthy food and beverages sold in and outside of school compounds is not new and remains unresolved despite decades of efforts. The lack of a legal mandate has led to inconsistent enforcement and compliance across schools. Similarly, the voluntary nature of the Healthy Meals in Schools Programme means that not all students benefit from the provision of nutritionally balanced meals,⁶⁰ particularly in schools lacking resources or motivation to adopt the programme.

On the other hand, policies and guidelines addressing healthier meal options are noticeably lacking on food delivery platforms. Demand for meal delivery expanded rapidly during and after the COVID-19 pandemic. While these platforms provide access to a wide variety of foods and culinary offerings, consumers often lack guidance to make healthier selections. Promotional strategies such as combo deals, flash discounts, and minimum spend incentives for free delivery are commonly used on food delivery platforms.

PUBLIC HEALTH IMPLICATIONS OF INADEQUATE NUTRITIONAL POLICIES AND REGULATIONS

The gaps in policy implementation and monitoring have important implications for population health. The increasing reliance on away-from-home meals and the growing use of meal delivery services may exacerbate the nation’s already critical nutrition and health challenges, such as

obesity, hypertension, diabetes, and hypercholesterolemia, along with unhealthy eating behaviours, including insufficient amounts of fruit and vegetable intake and excessive consumption of sugar-sweetened beverages.^{66,67}

In this context, gaps in policy coverage and implementation may contribute to disparities in access to healthier meal options, especially among the lower-income population segments. In addition, despite the existence of monitoring and evaluation activities, the limited assessment of consumer adoption of healthier options constrains understanding of the public health impact of these initiatives, including whether they lead to meaningful change in public behaviours, such as increased selection of healthier meals, or reductions in sodium, fat, or sugar content in meal offerings.

Furthermore, in the absence of a regulatory framework for rapidly expanding digital food delivery platforms, food marketing and promotional strategies may continue to favour energy-dense, nutrient-poor foods, potentially influencing meal selection without taking nutritional quality into consideration.

POTENTIAL TO IMPROVE FOOD ENVIRONMENTS AND HEALTHIER AWAY-FROM-HOME MEALS

Improving the current away-from-home food environment so that healthier options are accessible, available, and affordable would require commitment, collaborative approaches, and coordinated actions from multiple stakeholders. Yet these challenges also provide opportunities to improve population diets, advance public health, and strengthen the national strategies in non-communicable diseases prevention and management.

It is imperative to strengthen existing policies in empowering food vendors. The current nutrition-focused capacity-building programmes, such as the Healthy Catering Training equipping food handlers with healthy eating practices, meals preparation, menu planning, and cooking methods, could be expanded beyond formal food establishments to systematically include all small and informal food vendors, such as hawkers, street food vendors, food truck operators, and home-based food business owners. Consideration can also be given to gradually phase in these trainings, moving from voluntary to mandatory participation in stages for all kinds of food establishments, to be in line with the mandatory food safety training for all food handlers. These would provide a more robust foundation to improve both the nutritional profile and safety of meals served to the public.

A framework for nutritional guidelines, recipe reformulation, and nutrient profiling could improve the nutritional quality of out-of-home meals. In this regard, the existing Healthier Dining and MyMeal programmes could serve as a valuable starting point for this framework, extended to include informal food service vendors. Their measurable nutritional criteria, such as calorie and sodium limits in the Healthier Dining Programme and required servings from major food groups in MyMeal, provide a foundation for meal-based nutrient benchmarks. Harmonising these criteria would help establish clear and consistent thresholds for nutrients of public health concern, such as sodi-

um, fat, added sugar, and energy, while promoting positive nutrients such as dietary fibre. These can be further used as a backbone to guide recipe formulation and meal-based nutrient profiling, including popular street and hawker foods.

Nutrient profiling is a scientific method for classifying foods based on their nutritional composition.⁶⁸ It has been applied in developing front-of-pack labelling, regulating the promotion of baby foods and marketing of unhealthy foods to children, serving as a basis for food taxes, and reformulating food products.⁶⁸ Applying a conventional nutrient profiling model directly to street and hawker foods can be challenging due to variations in recipes, portion sizes, and cooking practices. However, the key ingredients used and the structure of popular hawker dishes tend to be similar; for example, dishes like *nasi lemak* generally follow some consistent basic ingredients despite individual differences. Thus, healthier reference recipes can be developed for different categories of popular hawker foods, providing details such as typical ingredient combinations and specifying portion size with practical tools like ladles, scoops, tablespoons, and teaspoons. These reference versions could translate nutrient benchmarks into practical guidance for vendors to adjust and moderate portion size, sodium, fat, and added sugar while ensuring adequate protein and vegetable content. Such guidance could be further developed into a functional nutrient profiling model, allowing dishes to be compared against a reference to guide consumers in choosing the healthier options. In Japan, a meal-based nutrient profiling system was developed to evaluate the overall nutritional value of culture-specific cooked dishes per serving size,⁶⁹ and in Thailand, there was an effort to categorise Thai cooked food and calculate the nutrient profile of Thai side dishes and combined meals.⁷⁰ These nutrient profile findings can be beneficial for consumer guidelines development, menu planning, and recipe development.⁷⁰

It is equally important that any reformulation, nutrient profiling, and nutritional improvement efforts remain culturally appropriate, as these foods and the culture of dining out extend beyond fulfilling nutritional needs. The goal is to make it easier for consumers to identify healthier options and, at the same time, preserve the culture. In this regard, collaborations among nutrition experts, culinary professionals, and local food vendors are essential to guide recipe adjustments that preserve traditional flavours and taste, culinary identity, and affordability while enhancing nutritional quality. This would require a systematic implementation plan, including analysis of popular hawker dishes to create a strong nutritional database, surveys among hawkers and consumers to understand acceptance and feasibility, pilots of models developed in hawker centres to test their practicality, suitable grants or subsidies for reformulation, and training to support informal and small-scale food operators who may lack technical expertise.

With the rapid expansion of online meal delivery services, digital meal delivery platforms should be engaged as a strategic partner in health promotion to contribute to healthier away-from-home meals. Nutritional guidelines similar to those used in the MyMeal and Healthier Dining programmes could be adapted and extended to online

delivery platforms to promote healthier meal options. Platforms should be engaged and encouraged to introduce healthier choice sections, prioritise the display of healthier items, or offer discounts for healthier menu options, to increase visibility and accessibility of healthier options for delivered meals. Evidence shows that nudging strategies, such as positioning healthier options more prominently, are effective in steering consumers toward healthier selections.⁷¹ In China, nudge-based interventions on meal delivery apps, such as the use of menu default options (reduced salt vs regular salt), were proven to be effective in promoting consumers to order reduced-salt dishes.⁷² User interface design for food choices and digital nudging within Malaysia's online food environment to promote healthier dietary behaviours could be further explored by pilot collaborations with major food delivery platforms. This would help test the feasibility and consumer response to various nudging mechanisms, such as healthier options and visible calorie and nutrient information.

Consumer awareness and education are another important aspect that requires serious attention, as education is a solid foundation for improving diet. The dietary guidelines' recommendation on choosing healthier options when eating out should be disseminated more widely. Building the population's food and nutrition literacy for healthier eating, especially from an early age, is essential to empower consumers to make informed choices. There is also an urgent need for comprehensive, nationally representative data on meals away from home, including consumption patterns, perceptions and demand for healthier meal options, purchasing behaviours, and how these meals contribute to overall diet and link to nutritional status, to inform future interventions. For programme and policy monitoring, future frameworks should include more robust health outcomes indicators, such as changes in nutrients of concern in out-of-home meals, reduction in the proportion of unhealthy meals and beverages available in eateries, and uptake of healthier menu items by consumers, to support evidence-based policy refinement.

CONCLUSION

Meals away from home have become an increasingly inevitable part of the Malaysian diet, highlighting the need to make these meals healthier to improve population health. Promoting a healthier away-from-home food environment in Malaysia requires a system-wide, comprehensive, and coordinated approach that is data-driven. This would include strengthening existing policies and regulatory frameworks, building the capacity of food service operators through nutrition and food safety training, conducting more research on the away-from-home food environment, enhancing consumer food and nutrition literacy, and considering the use of meal-based nutrient profiling and multisectoral collaboration. It is also vital that these efforts are sensitive to Malaysia's rich food culture and traditions, to ensure public acceptance, sustainability, and long-term impact.

DISCLOSURE ON THE USE OF AI AND AI-ASSISTED TECHNOLOGIES

During the preparation of this work, AI technologies were used to improve readability, language and grammar. The author reviewed and edited the content and takes full responsibility for the content of the publication.

CONFLICT OF INTEREST AND FUNDING DISCLOSURES

The author declares that there is no conflict of interest.

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