




Short Communication

The (scarce and circumscribed) culinary content in food-based dietary guidelines around the world: 1991–2021

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Abstract

Objective: To evaluate the culinary content of key messages contained in food-based dietary guidelines (FBDG) available at the global online repository of the FAO of the UN.

Design: Document analysis was conducted in August 2021 with data extraction of key messages explicitly related to cooking present in FBDG. Data were analysed inductively using thematic analysis.

Setting: The FAO's global repository of FBDG.

Participants: Not applicable.

Results: Just over half (n 39; 53.4%) of the seventy-three FBDG analysed included at least one key message about cooking. The Latin American and Caribbean FBDG presented the greatest amount and variety of content about cooking in the key messages, whereas the Near East and North America placed less emphasis on cooking. We identified three themes: (i) healthy food preparation (n 35; 61.4% of the fifty-seven culinary key messages identified); (ii) food hygiene (n 14; 24.6%) and (iii) the promotion of culinary practices (n 7; 12.3%). Albania's key message covered two themes (food hygiene and healthy food preparation) (n 1; 1.8%).

Conclusion: FBDG are official documents that express recommendations for a healthy diet. As most of these recommendations throughout the world include foods that must be cooked prior to consumption, culinary content should gain more visibility and be presented more broadly in these official documents.

Keywords
Dietary guidelines
Population health
Healthy diets
Cooking

Food-based dietary guidelines (FBDG) are documents with context-specific principles and recommendations on food and nutrition that express the position of governments on how healthy eating is defined. They are intended for use by the general public to educate people on healthy diets, provide the basis for food and nutrition policies, nutrition education programmes, and dietary planning for individuals and communities, and evaluate and monitor populations^(1,2).

In response to some recent public health challenges, such as changes in food systems and people's health

conditions, as well as the emergence of new paradigms of healthy diets^(3–6), FBDG are evolving into broader perspectives. Some FBDG incorporate new content, such as food combinations (meals), ways of eating, food safety considerations, lifestyle and, more incipiently, sustainability^(1–5).

Aligned with these new approaches and recommendations, cooking is emerging as a strategy to encourage people's adherence to healthy foods and meals^(3–6) and improve diet quality^(7–10). In addition, cooking at home,

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especially when using mainly fresh or minimally processed foods, has been associated with higher consumption of fruits and vegetables^(7–9) and lower consumption of ultra-processed food^(11–13), whose consumption is associated with several chronic non-communicable diseases⁽¹⁴⁾.

As instruments adapted to each sociocultural context, FBDG express the current recommendations for healthy eating worldwide and value the consumption of fresh or minimally processed foods^(3–6) that require culinary preparation before consumption. This article investigated whether the FBDG available in the global online repository of the FAO of the UN⁽¹⁵⁾ address recommendations on cooking in their key messages.

Materials and methods

All FBDG available for download from the FAO's global online repository of FBDG⁽¹⁵⁾ on 2 August 2021 were accessed. The FAO's repository, the largest available worldwide, publishes only FBDG that are endorsed by a governmental entity. The website includes a page for each country that has contributed materials⁽¹⁵⁾. The following FBDG were included in the analysis: (a) downloadable at the FAO website or found through direct links at the FAO website; (b) target audience was the general population; and (c) written in English, Spanish, French, Romanian, Italian or Portuguese to leverage the linguistic competences of the authors.

For data extraction, we examined key messages to identify any that were explicitly related to cooking, including elements such as the selection, hygiene and preparation of food^(16,17) and messages about valuing cooking. Data were analysed inductively using thematic analysis^(18,19). The first author read all messages multiple times to familiarise herself with the data. A list of initial descriptive codes and messages representative of each code was generated. The researchers reviewed and discussed the initial codes, and a final list of codes was agreed upon. Each document was analysed by two researchers independently. The coded content was organised into a table and reviewed, and then the themes were identified. A third assessment was made when there was a divergence in the extracted content (10% of cases). The messages were grouped into three themes: (i) 'food hygiene', for messages about good food handling practices; (ii) 'healthy food preparation', where the use or the restriction of some ingredients, foods or cooking techniques are encouraged; and (iii) 'promotion of culinary practices', in which food preparation is encouraged. Messages from each theme are presented in absolute and relative frequencies. The descriptive results are presented according to the region and country of origin, year of publication and culinary content covered in the key messages. The findings were interpreted from the perspective of health promotion^(1–3).

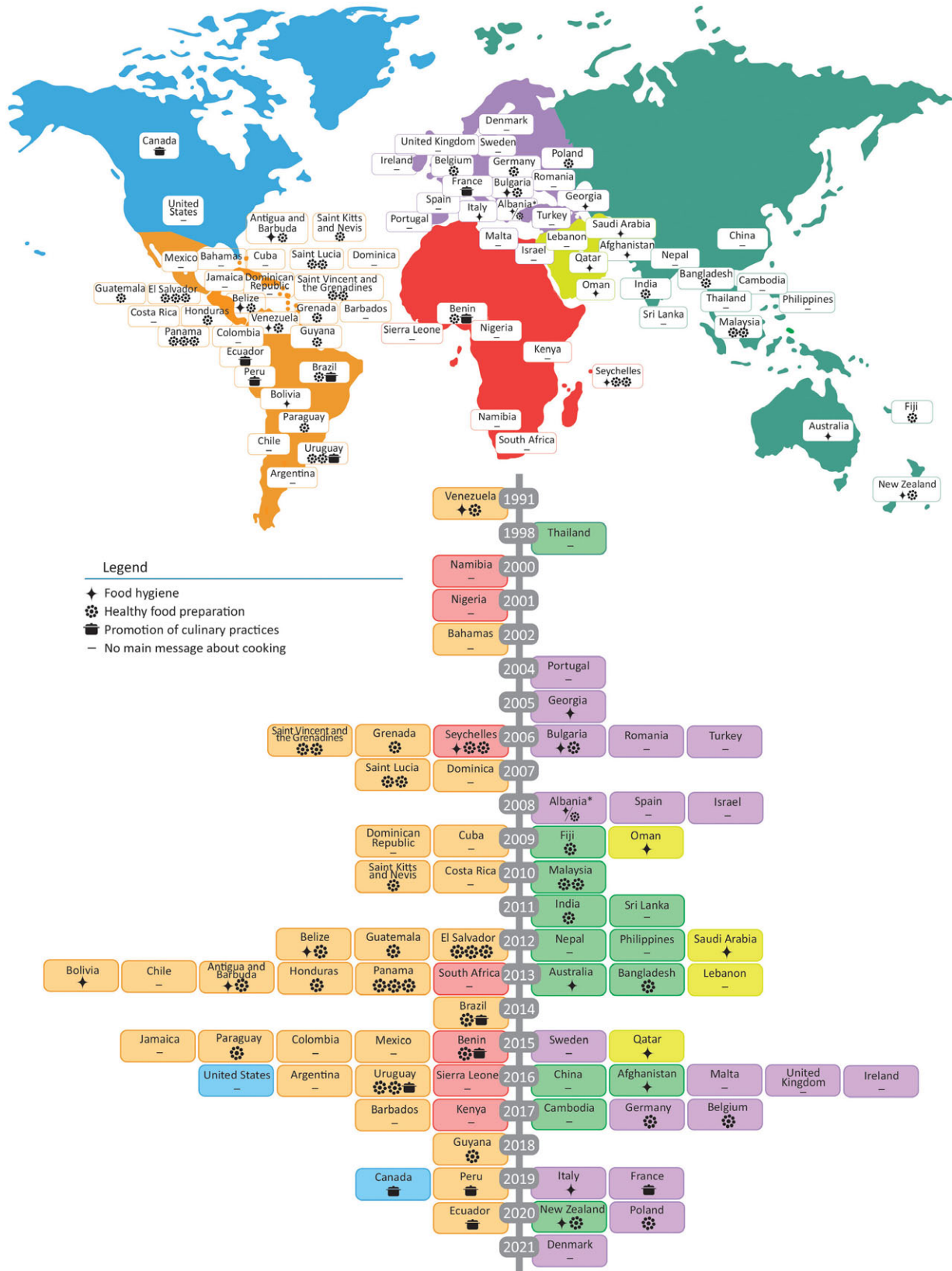
Results

Of the total FBDG available on the FAO website (n 95) distributed in six regions (Africa, n 7; Asia and the Pacific, n 18; Europe, n 33; Latin America and the Caribbean, n 29; Near East, n 6; and North America, n 2), twenty-two were excluded (Asia and the Pacific, n 5; Near East, n 2; Europe, n 15), because the language of the document was different from those selected for analysis. This resulted in seventy-three FBDG analysed. More than half (n 39; 53.4%) of them included at least one recommendation about cooking in their key messages.

The Latin American and Caribbean FBDG presented the greatest amount and variety of content about cooking in the key messages (eighteen of twenty-nine highlighted the theme). The Near East and North America were the regions with less emphasis on cooking (four of the thirty-nine FBDG). While Venezuela was the country with the oldest document (1991) that incorporated cooking recommendations in its key messages, the most recent documents that included the theme were from Poland and Ecuador, published in 2020⁽¹⁵⁾. El Salvador (2012)⁽²⁰⁾ and New Zealand (2020)⁽²¹⁾ were the countries that presented relatively more messages about cooking (three key messages out of nine and two in six, respectively).

Figure 1 summarises the information about the FBDG analysed according to country and year of publication. Table 1 presents the frequency of key messages and lists the culinary content of each message according to the identified themes.

In general, the recommendations presented in key messages were of a qualitative nature (no quantitative recommendations, such as food portions). Some were imprecise, such as '*Adopt appropriate pre cooking processes and appropriate cooking methods*', while other messages were more direct, such as '*Prepare a variety of foods daily using natural foods*'. The culinary contents most frequently presented in FBDG were those related to 'healthy food preparation' (n 35; 61.4% of the fifty-seven culinary key messages identified), especially those with warnings about limiting the use of salt and/or fat (mainly those of animal origin, such as milk fats, butter and rendered fats) and the promotion of the use of natural herbs and seasonings (such as aromatic herbs and condiments). In the theme 'food hygiene' (n 14; 24.6%), the most recurrent recommendation referred to the general care necessary for the safe preparation of food, such as keeping the kitchen clean and paying attention to conditions for shopping, food storage, and handwashing. Key messages regarding the 'promotion of culinary practices' theme, which value cooking as a sociocultural practice, were the least frequent (n 7; 12.3%) and were identified only in dietary guidelines published from 2014 onwards. Albania's key message covered two themes: food hygiene and healthy food preparation (n 1; 1.8%).



* On Albania's FBDG, a key message covers two categories.

Fig. 1 Approaches to cooking present in the key messages of thirty-nine food-based dietary guidelines including culinary content according to the region of the world and year of publication

Table 1 Culinary content identified in key messages of the food-based dietary guidelines (FBDG) according to the regions and countries of origin. FAO global online repository, 2021

Region	n	Country, year of publication*	Number of key messages related to cooking	Total number of messages	Themes and culinary content covered in the key messages of FBDG		
					Food hygiene	Healthy food preparation	Promotion of culinary practices
Africa	1	Seychelles, 2006	3	16	Practice good hygiene when handling food.	Remove fats on meat before cooking. Limit the frying of foods to only once a week. Limit the amount of oil/fat you use when cooking.	–
	2	Benin, 2015	2	10	–	–	Preserve your traditional cuisine and teach it to your children in order for them to appreciate and protect their health and food culture.
Asia and the Pacific	3	Fiji, 2009	1	10	–	Choose and prepare food and drinks with less salt, sugar, fat and oil.	–
	4	Malaysia, 2010	2	14	–	Limit intake of foods high in fats and minimise fats and oils in food preparation. Choose and prepare foods with less salt and sauces.	–
	5	India, 2011	1	15	–	Adopt right pre-cooking processes and appropriate cooking methods.	–
	6	Australia, 2013	1	5	Care for your food; prepare and store it safely.	–	–
	7	Bangladesh, 2013	1	10	–	Adopt and follow appropriate preparation and cooking practices and follow healthy eating habits.	–
	8	Afghanistan, 2016	1	10	Use clean and safe water for hand-washing, drinking and food preparation.	–	–
	9	New Zealand, 2020	2	6	Buy or gather, prepare, cook and store food in ways that keep it safe to eat.	Choose and/or prepare foods and drinks: with unsaturated fats instead of saturated fats; with little or no added sugar; if using salt, choose iodised salt that are mostly 'whole' and less processed.	–
Europe	10	Georgia, 2005	1	12	Prepare your meals according to hygienic recommendation and save the food under safety conditions.	–	–
	11	Bulgaria, 2006	2	12	Prepare and store the food in a way to ensure its quality and safety.	Limit total fat intake, especially animal fat. Replace animal fats with vegetable oils when cooking.	–
	12	Albania, 2008	1**	12	Prepare safety food and hygienically clean. cook, in order to reduce fat.	Stew, bake, toast, steam cook, micro-oven	–
	13	Germany, 2017	1	10	–	Do not overcook your meals.	–
	14	Belgium, 2017	1	17	–	Limit the amount of spreadable fat used on bread or when preparing meals.	–
	15	Italy, 2019	1	13	Food safety depends also on you.	–	–
	16	France, 2019	1	18	–	–	Increase the home-made.
	17	Poland, 2020	1	17	–	Replace frying, grilling with cooking, including steaming, stewing or baking.	–
Near East	18	Oman, 2009	1	10	Follow the five keys to safer food (keep clean; separate raw and cooked foods; cook thoroughly; keep food at safe temperatures; and use safe water and raw materials).	–	–



Table 1 Continued

Region	n	Country, year of publication*	Number of key messages related to cooking	Total number of messages	Themes and culinary content covered in the key messages of FBDG		
					Food hygiene	Healthy food preparation	Promotion of culinary practices
Latin America and the Caribbean	19	Saudi Arabia, 2012	1	8	Purchase, prepare, cook and store food in ways to ensure food safety.	–	–
	20	Qatar, 2015	1	8	Adopt safe and clean food preparation methods.	–	–
	21	Venezuela, 1991	2	12	Handle food hygienically.	Use vegetable oils in the preparation of meals and avoid using too much animal fat.	–
	22	Saint Vincent and the Grenadines, 2006	2	9	–	Use steaming, boiling and baking, as often as possible instead of frying, stewing and barbecuing.	–
	23	Grenada, 2006	1	8	–	When cooking, use less salt and salted seasonings; eat less salted foods and snacks.	–
	24	Saint Lucia, 2007	2	8	–	Consume less salt, salty foods, salty seasonings and salty snacks.	–
	25	Saint Kitts and Nevis, 2010	1	8	–	Buy less fatty and greasy foods and when you cook, use less fat and oils.	–
	26	Belize, 2012	2	8	Practice good hygiene when buying, storing, preparing and cooking foods.	Use less salt, salted foods, packaged seasonings and salty snacks.	–
	27	El Salvador, 2012	3	9	–	Use less fats and oils when preparing and cooking foods.	–
	28	Guatemala, 2012	1	10	–	Use natural seasonings in food preparation and cooking.	–
	29	Antigua and Barbuda, 2013	2	8	Use safe food handling and food storage practices.	Season foods with herbs and natural spices instead of using condiments, artificial seasonings and highly processed sauces.	–
	30	Bolivia, 2013	1	10	Wash your hands before preparing and eating foods.	Prepare varied meals using natural foods every day.	–
	31	Honduras, 2013	1	7	–	When cooking, use vegetable oil in small amounts and avoid the use of cooking fat and margarine.	–

Table 1 Continued

Region	Country, year of publication [*]	Number of key messages related to cooking	Total number of messages	Themes and culinary content covered in the key messages of FBDG		
				Food hygiene	Healthy food preparation	Promotion of culinary practices
	32 Panama, 2013	3	8	–	Use natural seasonings such as garlic, onion, coriander, parsley, spring onions, oregano and pepper. Use little oil and cooking fats. Limit your intake of processed products high in Na, such as artificial sauces and seasonings, dry soups, cans and jars.	–
	33 Brazil, 2014	2	10	–	Use oils, fats, salt and sugar in small amounts when seasoning and cooking natural or minimally processed foods and to create culinary preparations.	Develop, exercise and share cooking skills.
	34 Paraguay, 2015	1	12	–	Use small quantities of iodised salt when preparing your meals to prevent high blood pressure.	–
	35 Uruguay, 2016	3	11	–	Choose oil for cooking instead of other fats. Avoid buying products with an excessive quantities of fat and specially the ones with trans-fat. Reduce the salt and sugar added when cooking: small quantities are enough to bring out the flavours.	Cooking traditional foods is good for you: discover the joy of cooking and make it a shared activity.
	36 Guyana, 2018	1	9	–	Use more natural seasonings and less salt and salty products.	–
	37 Peru, 2019	1	12	–	–	Prefer home-made meals and enjoy them in company.
	38 Ecuador, 2020	1	11	–	–	Let's value what is ours! Take advantage of the richness of the food and flavours of Ecuador. Let's cook and enjoy as a family!
North America	39 Canada, 2019	1	9	–	–	Cook more often.

^{*}All FBDG are available on the FAO's global repository website: <https://www.fao.org/nutrition/education/food-dietary-guidelines>.

^{**}On Albania's FBDG, a key message covers two categories: food hygiene ('Prepare safety food and hygienically clean') and healthy food preparation ('Stew, bake, toast, steam cook, micro-oven cook, in order to reduce fat').



Discussion

Although FBDG are the main instruments that express the recommendations for healthy eating worldwide^(1,2) and most of these recommendations include foods that require preparation/cooking before consumption^(3–6), just over half (53.4 %) of the seventy-three FBDG analysed included content on cooking among their key messages. When included, the most frequent recommendations related to cooking were those with restrictive content that focused on limiting the use of fat and/or salt during food preparation or those referring to safe food preparation, such as the proper storage of food. On the other hand, in recent years, seven countries (Brazil⁽²²⁾, Benin⁽²³⁾, Uruguay⁽²⁴⁾, Ecuador⁽²⁵⁾, Peru⁽²⁶⁾, France⁽²⁷⁾ and Canada⁽²⁸⁾) have emphasised key messages in the promotion of culinary practices in their FBDG, four of which explicitly relate this practice to sociocultural aspects.

The development, practice and sharing of culinary skills have been associated with the consumption of diets with better nutritional quality^(29–31), including a lower consumption of ultra-processed foods in the home environment^(11–13). The dietary guidelines for the Brazilian population⁽²²⁾, published in 2014, was the first FBDG to include guidelines to encourage cooking. It presented a broader and less technical perspective that encouraged the improvement of culinary skills, the division of tasks in the kitchen and the transmission of culinary knowledge between generations. After that publication, Benin⁽²³⁾, Uruguay⁽²⁴⁾, Ecuador⁽²⁵⁾, Peru⁽²⁶⁾, France⁽²⁷⁾ and Canada⁽²⁸⁾ also adopted similar approaches.

France⁽²⁷⁾ and Canada⁽²⁸⁾ encourage people to cook more frequently through the messages ‘Augmenter le fait Maison’ and ‘Cook more often’, respectively. This incentive to cook is opportune since the greater the frequency of cooking at home⁽⁷⁾ and the consumption of home-cooked meals⁽¹⁰⁾, the better the quality of the diet consumed. However, information on what kind of food to prefer for cooking is equally relevant as the sales and consumption of ultra-processed foods are increasing worldwide⁽³²⁾. El Salvador’s dietary guidelines⁽²⁰⁾ contain a recommendation that considers both pieces of information: ‘Prepare a variety of meals daily using natural foods’. This message is aligned with cooking from scratch, a type of cooking based on the preparation of fresh or minimally processed foods, which is recognised as a way of healthier cooking^(11,33).

When considering the health benefits of culinary practices, the approaches are diverse. The key messages related to ‘healthy food preparation’ are in line with the WHO healthy diet recommendations⁽⁶⁾ and with culinary practices that prevent chronic non-communicable diseases related to unhealthy diets⁽³⁴⁾, such as obesity, hypertension and diabetes⁽³⁵⁾. Thus, encouraging healthy culinary practices, that is, those related to the preparation of meals based mostly on fresh or minimally processed foods⁽²²⁾

and prepared with frequent use of natural herbs and seasonings and moderate use of salt, oils, fats, sugars, and fried foods⁽³⁴⁾, consists of promoting ‘healthy diets’⁽⁶⁾ and, consequently, can potentially contribute to the control and reduction of non-communicable diseases⁽³⁴⁾. Although key messages about ‘food hygiene’ are less frequent among more recent documents, diseases caused by the consumption of contaminated food and/or water are still a reality around the world⁽³⁶⁾, justifying their maintenance in the documents.

Among all FBDG analysed, only the Uruguayan FBDG⁽²⁴⁾ highlighted cooking as a pleasurable practice⁽³⁷⁾, thus valuing and considering the expanded concept of health⁽³⁸⁾. Another issue that is overlooked by documents that promote the practice of cooking is the importance of sharing household tasks (including those related to cooking) and addressing gender issues. The sharing of tasks related to cooking between genders – including men and boys, who usually have less responsibility for this task^(9,39) – is a way to promote healthy eating recommendations based on foods that require preparation/cooking before consumption without overloading women (either older or younger). It is concerning that only two (Brazil⁽²²⁾ and Uruguay⁽²⁴⁾) of the seventy-three FBDG analysed presented messages about the importance of sharing activities related to cooking. Additionally, the Ecuador dietary guidelines⁽²⁵⁾ raise awareness of the importance of ‘cooking with the family’, and Benin’s dietary guidelines⁽²³⁾ recommend the transmission of culinary knowledge to children as a way to promote health and maintain the country’s food culture; these benefits have been observed in recent studies^(11,29,40).

This study provides the first analysis of culinary content in key messages of FBDG and highlights the importance of giving visibility to the promotion of cooking in FBDG as a strategy for public policy-makers to develop actions that simultaneously promote the health of people and the planet. The fact that messages encouraging culinary practices seem to be gaining attention in the most recent FBDG is a positive indicator that cooking is considered an essential practice for promoting healthy eating. However, it can also be an alert that, as an example of the culinary skills transition process seen in the British reality⁽⁴¹⁾, other populations around the world may be changing their relationship with domestic cuisines and encouraging a growing number of orientations that promote cooking. On the other hand, the absence of key messages regarding sustainable cooking practices is also an important indicator that this subject is not considered strategic to mitigate climate impacts – a position different from that indicated by recent scientific evidence^(42–44).

Despite the strengths of this study, its results need to be interpreted considering its limitations. A limitation of this study is the fact that only FBDG available in the FAO repository⁽¹⁵⁾ were included in our analyses; however, to the best of our knowledge, this is the largest database on dietary

guidelines in the world⁽²⁾. Another limitation of this study was the omission of 30.1 % (n 22) of the documents made available by the FAO's repository⁽¹⁵⁾ because they were written in languages not chosen for analysis in this study.

Conclusion

Cooking is a practice developed by individuals in the home environment, and there is growing evidence that it is related to improvements in individuals' and populations' food consumption^(9,11,13,31,42,44). In addition, it is considered a strategy to facilitate the implementation of healthy and sustainable diets; thus, cooking should be encouraged, promoted and supported by public policies, including FBDG. The good news is that several of the FBDG already present culinary content in their key messages. Nevertheless, this subject needs more visibility and should be presented more broadly in official documents that guide healthy eating, such as the FBDG, whose purpose is to assist the general population in following food, nutrition and related health recommendations⁽⁴⁵⁾.

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References

1. Joint FAO/WHO Consultation on Preparation and Use of Food-Based Dietary Guidelines (1995: Nicosia, Cyprus) & World Health Organization (1998) *Preparation and Use of Food-Based Dietary Guidelines*. Geneva: World Health Organization.
2. United Nations Children's Fund (2020) *Review of National Food-Based Dietary Guidelines and Associated Guidance for Infants, Children, Adolescents, and Pregnant and Lactating Women*. New York: UNICEF.
3. Food and Agriculture Organization of the United Nations & World Health Organization (2019) *Sustainable Healthy Diets: Guiding Principles*. Rome: FAO.

4. Molina V (2014) *The State of Food-Based Food Guides in Latin America and the Caribbean 21 Years After the International Conference on Nutrition*. Rome: Division of Nutrition, Food and Agriculture Organization of the United Nations (FAO).
5. Gonzalez Fischer C & Garnett T (2016) *Plates, Pyramids, Planet: Developments in National Healthy and Sustainable Dietary Guidelines: A State of Play Assessment*. Rome: FAO and Food Climate Research Network.
6. World Health Organization (2018) Healthy Diet – Fact Sheet No. <https://www.who.int/publications/m/item/healthy-diet-factsheet394> (accessed January 2022).
7. Wolfson JA, Leung CW & Richardson CR (2020) More frequent cooking at home is associated with higher healthy eating index-2015 score. *Public Health Nutr* **23**, 2384–2394.
8. Wolfson JA & Bleich SN (2015) Is cooking at home associated with better diet quality or weight-loss intention? *Public Health Nutr* **18**, 1397–1406.
9. Mills S, White M, Brown H et al. (2017) Health and social determinants and outcomes of home cooking: a systematic review of observational studies. *Appetite* **111**, 116–134.
10. Mills S, Brown H, Wrieden W et al. (2017) Frequency of eating home cooked meals and potential benefits for diet and health: cross-sectional analysis of a population-based cohort study. *Int J Behav Nutr Phys Act* **14**, 109.
11. Martins CA, Andrade GC, Oliveira MFB et al. (2021) “Healthy”, “usual” and “convenience” cooking practices patterns: how do they influence children's food consumption? *Appetite* **158**, 105018.
12. Brunner TA, van der Horst K & Siegrist M (2010) Convenience food products. Drivers for consumption. *Appetite* **55**, 498–506.
13. Lam MCL & Adams J (2017) Association between home food preparation skills and behaviour, and consumption of ultra-processed foods: cross-sectional analysis of the UK national diet and nutrition survey (2008–2009). *Int J Behav Nutr Phys Act* **14**, 68.
14. Monteiro CA, Cannon G, Lawrence M et al. (2019) *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System*. Rome: Food and Agriculture Organization of the United Nations.
15. Food and Agriculture Organization of the United Nations (2022) Food-Based Dietary Guidelines. Food and Agriculture Organization of the United Nations. <http://www.fao.org/nutrition/education/food-dietary-guidelines/home/en/> (accessed January 2022).
16. Short F (2006). *Kitchen Secrets: The Meaning of Cooking in Everyday Life*. Oxford: Berg Publishers.
17. Oliveira MFB & Castro IRR (2022) Cooking autonomy: a multilevel conceptual model on healthy home cooking. *Cad Saude Pública* **38**, 4.
18. Minayo MCDS (2013) *The Challenge of Knowledge. Qualitative Research in Health*, 13th ed. São Paulo: Hucitec.
19. Braun V & Clarke V (2006) Using thematic analysis in psychology. *Qual Res Psychol* **3**, 77–101.
20. El Salvador (2012) *Dietary Guidelines for Salvadorian Families*, 1st ed. El Salvador: Ministry of Health of El Salvador.
21. New Zealand (2020) Eating and Activity Guidelines for New Zealand Adults. Ministry of Health of New Zealand.
22. Brazil (2014) *Dietary Guidelines for the Brazilian Population*, 2nd ed. Brasília, DF: Ministry of Health of Brazil.
23. Benin (2015) *Benin's Dietary Guidelines*. Benin: Food and Nutrition Council.
24. Uruguay (2016) *Dietary Guidelines for the Uruguayan Population: For a Healthy, Shared and Enjoyable Diet*. Montevideo: Nutrition Programmatic Area under the Ministry of Public Health.



25. Ecuador (2020) *Food-Based Dietary Guidelines of Ecuador*. Quito, Ecuador: Ministry of Public Health of Ecuador.
26. Serrano MLL & Curi CHD (2019) *Dietary Guidelines for the Peruvian Population*. Lima, Peru: Ministry of Health, National Health Institute.
27. France (2019) *The French National Nutrition and Health Program's Dietary Guidelines*. Paris, France: Ministry of Solidarity and Health, Public Health France.
28. Canada (2019) *Canada's Food Guide*. Ottawa: Minister of Health.
29. Lavelle F, Spence M, Hollywood L *et al.* (2016) Learning cooking skills at different ages: a cross-sectional study. *Int J Behav Nutr Phys Act* **13**, 119.
30. Hartmann C, Dohle S & Siegrist M (2013) Importance of cooking skills for balanced food choices. *Appetite* **65**, 125–131.
31. McGowan L, Caraher M, Raats M *et al.* (2017) Domestic cooking and food skills: a review. *Crit Rev Food Sci Nutr* **57**, 2412–2431.
32. Baker P, Machado P, Santos T *et al.* (2020) Ultra-processed foods and the nutrition transition: global, regional and national trends, food systems transformations and political economy drivers. *Obes Rev* **21**, e13126.
33. Lavelle F, McGowan L, Spence M *et al.* (2016) Barriers and facilitators to cooking from 'scratch' using basic or raw ingredients: a qualitative interview study. *Appetite* **107**, 383–391.
34. Raber M, Chandra J, Upadhyaya M *et al.* (2016) An evidence-based conceptual framework of healthy cooking. *Prev Med Rep* **4**, 23–28.
35. Swinburn BA, Kraak VI, Allender S *et al.* (2019) The global syndemic of obesity, undernutrition, and climate change: the Lancet Commission report. *Lancet* **393**, 791–846.
36. World Health Organization (2022) Food Safety. <https://www.who.int/westernpacific/health-topics/food-safety> (accessed January 2022).
37. Farmer N & Cotter EW (2021) Well-being and cooking behavior: using the positive emotion, engagement, relationships, meaning, and accomplishment (PERMA) model as a theoretical framework. *Front Psychol* **12**, 560578.
38. World Health Organization (2020) Basic Documents: Forty-Ninth Edition (Including Amendments Adopted Up to 31 May 2019). <https://apps.who.int/gb/bd/> (accessed January 2022).
39. Wolfson JA, Ishikawa Y, Hosokawa C *et al.* (2021) Gender differences in global estimates of cooking frequency prior to COVID-19. *Appetite* **161**, 105117.
40. Martins CA, Machado PP, Louzada MLDC *et al.* (2020) Parents' cooking skills confidence reduce children's consumption of ultra-processed foods. *Appetite* **144**, 104452.
41. Lang T & Caraher M (2001) Is there a culinary skills transition? Data and debate from the UK about changes in cooking culture. *J HEIA* **8**, 2–14.
42. Frankowska A, Rivera XS, Bridle S *et al.* (2020) Impacts of home cooking methods and appliances on the GHG emissions of food. *Nat Food* **1**, 787–791.
43. Rivera XCS & Azapagic A (2016) Life cycle costs and environmental impacts of production and consumption of ready and home-made meals. *J Clean Prod* **112**, 214–228.
44. Food and Agriculture Organization of the United Nations (2022) The Art of Cooking and What You Can Do to Make It More Sustainable. Food and Agriculture Organization of the United Nations. <http://www.fao.org/fao-stories/article/en/c/1412071/> (accessed January 2022).
45. Food and Agriculture Organization of the United Nations (2007) Developing Food-Based Dietary Guidelines. <https://www.fao.org/3/ai800e/ai800e00.htm> (accessed January 2022).