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SUPPLEMENT ARTICLE

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An 11-country study to benchmark the implementation of recommended nutrition policies by national governments using the Healthy Food Environment Policy Index, 2015-2018

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Summary

The Healthy Food Environment Policy Index (Food-EPI) aims to assess the extent of implementation of recommended food environment policies by governments compared with international best practices and prioritize actions to fill implementation gaps. The Food-EPI was applied in 11 countries across six regions (2015-2018). National public health nutrition panels (n = 11-101 experts) rated the extent of implementation of 47 policy and infrastructure support good practice indicators by their government(s) against best practices, using an evidence document verified by government officials. Experts identified and prioritized actions to address implementation gaps. The proportion of indicators at "very low if any," "low," "medium," and "high" implementation, overall Food-EPI scores, and priority action areas were compared

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across countries. Inter-rater reliability was good (GwetAC2 = 0.6-0.8). Chile had the highest proportion of policies (13%) rated at "high" implementation, while Guatemala had the highest proportion of policies (83%) rated at "very low if any" implementation. The overall Food-EPI score was "medium" for Australia, England, Chile, and Singapore, while "very low if any" for Guatemala. Policy areas most frequently prioritized included taxes on unhealthy foods, restricting unhealthy food promotion and front-of-pack labelling. The Food-EPI was found to be a robust tool and process to benchmark governments' progress to create healthy food environments.

KEYWORDS

accountability, benchmarking, food environments, policy implementation

1 | INTRODUCTION

Global age-standardized mean body-mass index increased from 21.7 kg/m^2 in 1975 to 24.2 kg/m^2 in 2014 in men and from 22.1 kg/m^2 in 1975 to 24.4 kg/m^2 in 2014 in women.[1] Malnutrition in all its forms, including obesity, is a major cause of death and disease globally, as documented in the latest Global Burden of Disease Study 2016.[2] It has been well established that unhealthy food environments are a major driver of unhealthy population diets and obesity.[3,4] Effective government policies are essential to create healthy food environments and to reduce the high levels of obesity, diet-related noncommunicable diseases (NCDs), and their related inequalities in countries globally.[3] Monitoring the degree of implementation of recommended policies is an important part of ensuring progress towards better population nutritional health.[5]

The International Network for Food and Obesity/NCDs Research, Monitoring and Action Support (INFORMAS)[6] developed a Healthy Food Environment Policy Index (Food-EPI) in 2013 to assess the extent of implementation of recommended food environment policies by national governments compared with international best practices and to derive concrete priority actions to fill implementation gaps identified.[7] The Food-EPI includes two components ("policies" and "infrastructure support") and more than 40 good practice indicators, based on recommendations from high-level reports on improving population nutrition and consultations with international food policy experts.[7] The Food-EPI process at the country level involves the rating by national expert panels, including public health and nutrition experts, and representatives from nongovernmental organizations (NGOs) and medical associations, of the extent of implementation of food environment policies by their governments compared with international best practices. Experts' ratings are informed by comprehensive evidence of implementation for each indicator, verified by government officials and international best practice exemplars (benchmarks). Based on implementation gaps identified, experts propose concrete actions for implementation by their government and prioritize those according to importance and achievability criteria.

The Food-EPI tool and process were initially pilot tested[8] and first implemented in New Zealand in 2014,[9] before they were offered for wider international implementation. To date, the food-EPI process has been conducted in 11 countries.[10-14]

The aims of this study were (1) to compare the extent of policy implementation to create healthy food environments by national governments compared with international best practices across 11 countries in different regions globally and (2) to evaluate the Food-EPI tool and process and make recommendations for its future use and implementation.

2 | METHODS

There was no sampling of countries conducted for this study. In principle, the Food-EPI can be applied in any country, after training by INFORMAS and adapting the tool and process to the country context. This study includes 11 countries from six different geographical regions of the world. These are countries where research groups or NGOs showed interest in the tool and process and managed to get funding to implement the Food-EPI during the period 2015 to 2018: New Zealand and Australia (*Oceania*); England (*Europe*); South Africa (*Africa*); Thailand, Malaysia, and Singapore (*Asia*); Chile, Mexico, and Guatemala (*Latin America*); and Canada (*North America*). The study was approved by the Human Participants Ethics Committees of the respective institutions who coordinated the Food-EPI in their countries (see details in Appendix 1).

The Food-EPI uses a mixed methods design to derive the ratings of the level of implementation of recommended food environment policies and infrastructure support and to identify and prioritize concrete actions to fill implementation gaps. The Food-EPI tool and process have been explained in detail elsewhere[7,14] (Appendix 2).

The Food-EPI's 47 good practice indicators for policy and infrastructure support are listed in Appendix 3.

2.1 | National expert panels

National expert panels representative of the public health nutrition community in the respective countries were formed. Invitations were sent to a wide range of informed public health and nutrition experts (academics, researchers, and practitioners and representatives of NGOs, including medical associations, professional bodies, and service providers) in each of the countries undertaking the Food-EPI process. Individuals working for the government or the food industry were excluded. The experts each signed an informed consent form and declared their conflicts of interest.

Participation in government advisory committees was not considered a conflict of interest.

2.2 | Evidence compilation and verification

For each country, a document on the current extent of implementation of all 47 common good practice policy and infrastructure support indicators across the 13 policy and infrastructure support Food-EPI domains was prepared. Information was compiled from publicly available information (e.g. annual reports, press-release statements, policy documents, and budgets retrieved from websites), direct communication with organizations/government officials, and/or through Freedom of/Access to Information requests. A broad view of relevant evidence was taken, so as to include, among others, regulations and legislation; policy briefs or proposals under consideration; evidence of commitments from government to explore policy options; reports on evaluation of policies or monitoring food environments, consumption, and/or obesity and NCDs; allocation of responsibility to an individual or team; establishment of steering committees, working groups or expert panels; reviews, audits, scoping studies, or consultation processes undertaken; and regulatory, economic, or health impact assessments.

The evidence of implementation was comprehensively documented and returned to government officials to verify its completeness and accuracy.

2.3 | International best practice exemplars (benchmarks)

Benchmarks were extracted for each of the good practice indicators from the World Cancer Research Fund NOURISHING framework[15] and reviewed by international food policy experts as part of INFORMAS. The same benchmarks were used in all countries. Examples of international best practice benchmarks include the 10% soda and 8% junk food taxes implemented in Mexico (food price domain), comprehensive restrictions on unhealthy food marketing to children across media in Chile (food promotion domain), sodium targets in a range of food product categories specified by law in Argentina and South Africa (food composition domain) and the nutrient profiling system to prevent unhealthy food products carrying health claims in Australia and New Zealand (food labelling domain).

2.4 | Rating the extent of implementation compared with best practices

In most countries, all 47 good practice indicators (Appendix 3) comprising 23 policy indicators and 24 infrastructure support indicators were rated against international best practices using Likert scales (1 to 5). A rating of 1 meant between 0% and 20% implementation compared with international best practices, and a rating of 5 meant between 80% and 100% implementation compared with best practices. Three countries (Australia, Singapore, and Malaysia) used a rating scale from 1 to 10 instead, but the interpretation was the same as for the Likert scale (1-5) rating.

Some countries (Thailand and Australia) excluded a small number of indicators from the assessment because they were not relevant to the country context or because it proved too difficult to collect reliable evidence of government implementation. Some countries added a number of context-specific indicators, but these are not further considered as part of the present study. Examples include access to safe drinking water in Latin America or support for community-based programs in Australia.

Six countries organized workshops (either one or more) with the Expert Panel to gather the ratings, while five countries conducted the rating process online.

Two countries (Australia and Canada) rated the implementation of relevant indicators by both federal and state/provincial governments, taking into account the jurisdiction of each level of government for each policy area. Experts in all countries were sent the evidence document in advance, and evidence summaries were presented to them either online or during the workshops before they rated each of the good practice indicators. Government stakeholders were involved as observers during the rating process in all countries, except in Guatemala and South Africa.

2.5 | Action workshops and prioritization

Workshops (either one or more) were organized in each of the countries to review the implementation gaps as identified from the ratings and to propose and prioritize concrete actions for implementation by the national government. Experts participating in the workshops were presented with the implementation rating scores from online or in-person ratings for each good practice indicator. They discussed the need for any action(s) to fill the implementation gaps and proposed relevant actions to improve food environments and population nutrition and reduce obesity and diet-related NCDs.

After compiling the full list of proposed actions, in the workshops, the expert panel members were asked to individually prioritize the importance and achievability of the actions using an Excel sheet or an online questionnaire tool. They were asked to take into account the relative need, impact, effects on equity, and any other positive and negative effects of the action when rating "importance." They were asked to consider the relative feasibility, acceptability, affordability, and efficiency of the action when rating "achievability" (Appendix 2).

For each proposed action, scores from experts were summed, and actions were ranked from higher to lower importance and achievability. Minor adjustments to this prioritization process were made in several countries (i.e. ranking actions instead of allocating points or prioritizing indicators instead of actions).

2.6 | Data analysis

The mean rating for each good practice indicator (derived from either 1-5 or 1-10 ratings) was used to determine an overall percentage level of implementation. These mean ratings were then categorized into the following levels of implementation based on the cut-points: ≥75% = "high" (representing international best practice); 50% to 74% = "medium"; 25% to 49% = "low"; ≤24% = "very low, if any." For Australia and Canada, a composite score was calculated for each indicator, taking into account performance of the federal, as well as the state/provincial governments. For indicators with shared jurisdiction among federal and state/provincial levels, the mean score of the federal

and state/provincial governments was calculated, giving the federal government the same weight as each of the states or provinces.

Inter-rater reliability was calculated using the Gwet AC2 coefficient with the AgreeStat software (Agreestat 2013.1, Advanced Analytics, Gaithersburg, Maryland, USA). For estimation of the variance, the sample of subjects (=indicators of the Food-EPI) to rate was set at 100%, while the sample of raters was set at the response rate of experts invited (different for each country).

The overall Food-EPI score and the policy and infrastructure support component scores were calculated using weightings[16] for relative contributions of food environment policies to improve population nutrition. These weightings were the same for all countries and were derived from literature reviews and a Delphi with international food policy experts (Appendix 4) and have been explained elsewhere.[16] Weightings for the indicators within the "infrastructure support" component of the Food-EPI were set at 1 due to the lack of empirical evidence of their impact on improving population nutrition and because all those indicators are considered necessary for policy development and implementation. The overall Food-EPI score was calculated as the mean of the policy and infrastructure support component scores.

2.7 | Evaluation of tool and process

Semistructured interviews were conducted with the different country teams (key informants), which implemented the Food-EPI to gather insights into the major strengths and limitations of the tool and process. The interviews were analysed using the thematic framework analysis approach.[17]

3 | RESULTS

3.1 | Composition of expert panels

The composition of expert panels varied across countries with Chile, South Africa, and Singapore having the highest proportions of academic experts and Malaysia, England, and Australia having the highest proportions of NGO representatives. The overall response rates were highest in Canada and Australia (70%) and lowest in Mexico and South Africa (approximately 30%) (Table 1).

3.2 | Differences in the process

All but two countries (Guatemala and South Africa) had policymakers present as observers during the process of rating and/or prioritization of actions. Some countries involved policymakers very extensively;e.g., policymakers compiled the evidence rather than only verifying it (Australia), or they participated in, rather than just observed the rating process (Thailand, Mexico, and New Zealand).[10,14] The self-assessments by policymakers are however not further discussed in this paper, and results of the rating and prioritization process only include data from independent experts.

Inter-rater reliability was good (Gwet AC2 between 0.6 and 0.8) in all countries but highest in New Zealand and South Africa (>0.80; Table 2).

3.3 | Benchmarking the extent of implementation compared with international best practices

Chile had the highest proportion of the 23 good practice policy indicators (13%) rated at "high" implementation (at the level of international best practice), while six out of the 11 countries had no policy indicators rated at "high" implementation. Guatemala had the highest proportion of the 23 good practice policy indicators (83%) rated at the level of "very low if any" implementation compared with international best practices. England and Malaysia had none of the 23 good practice policy indicators rated at the level of "very low if any" implementation (Figure 1).

Singapore and New Zealand had the highest proportion of the 24 infrastructure support indicators (29% and 21%, respectively) rated at "high" implementation (at the level of international best practice), while four out of the 11 countries (Malaysia, Guatemala, South Africa.

TABLE 1 Experts participating in the Food-EPI in different countries, excluding government experts

Region	Country	Year	N Experts Invited	Response Rate-Ratings	*% of Academia*	*% of NGO Representatives*	*% of Other Civil Society Organizations*	Response Rate-Actions	Response Rate-Prioritization	Response Rate-Total[b]
Asia-Pacific	New Zealand	2014	105	52 (49.5%)	22 (42.3%)	21 (40.4%)	9 (17.3%)	52 (49.5%)	58 (55.2%)	58 (55.2%)
	New Zealand[a]	2017	125	71 (56.8%)	25 (35.2%)	14 (19.7%)	32 (45.1%)	45 (36.0%)	45 (36.0%)	71 (56.8%)
	Thailand	2015	46	27 (58.7%)	16 (59.3%)	11 (40.7%)	0 (0.0%)	27 (58.7%)	27 (58.7%)	27 (64.8%)
	Australia	2016	144	101 (70.1%)	49 (48.5%)	49 (48.5%)	3 (3.0%)	58 (40.3%)	58 (40.3%)	101 (70.1%)
	Malaysia	2017	49	26 (53.1%)	11 (42.3%)	15 (57.7%)	0 (0.0%)	26 (53.1%)	24 (49.0%)	26 (53.1%)
	Singapore	2018	44	20 (45.5%)	13 (65.0%)	4 (20.0%)	3 (15.0%)	20 (45.5%)	20 (45.5%)	20 (45.5%)
Latin America	Chile	2017	87	40 (46.0%)	32 (80.0%)	8 (20.0%)	0 (0.0%)	14 (16.1%)	26 (29.9%)	40 (46.0%)
	Mexico	2016	101	33 (32.7%)	20 (60.6%)	13 (39.4%)	0 (0.0%)	33 (32.7%)	33 (32.7%)	33 (32.7%)
	Guatemala	2017	142	45 (31.7%)	26 (57.8%)	8 (17.8%)	11 (24.4%)	55 (38.7%)	39 (27.5%)	64 (45.1%)
North America	Canada	2017	111	71 (64.0%)	44 (62.0%)	23 (32.4%)	4 (5.6%)	22 (19.8%)	52 (46.8%)	78 (70.3%)
Europe	England (UK)	2016	107	41 (38.3%)	20 (48.8%)	21 (51.2%)	0 (0.0%)	59 (55.1%)	34 (31.8%)	59 (55.1%)
Africa	South Africa	2017	39	11 (28.2%)	10 (90.9%)	1 (9.1%)	0 (0.0%)	8 (20.5%)	8 (20.5%)	11 (28.2%)

Abbreviations: Food-EPI, Healthy Food Environment Policy Index; NGO, nongovernmental organization.

[a]Experts from local District Health Boards included (n = 23).

[b]Based on the total number of experts participating in one, two, or three steps of the process (rating, actions, and prioritization).

TABLE 2 Differences in methodology across countries and methodological evaluation of the Food-EPI rating process

Region	Country	Year	Policymakers as Observers	Policymakers Participated in the Ratings[a]	Online Ratings	Inter-rater Reliability (95%CI)	N indicators Included	% Missing Ratings Across Indicators and Raters	N Country Benchmarks	N Country Benchmarks Rated at Best Practice[f]
Asia-Pacific	New Zealand	2017	yes	no	yes	0.81 (0.79-0.83)	47	2.6	10 (21.3%)	6 (60.0%)
	New Zealand	2014	yes	yes	no	0.78 (0.76-0.79)	42[e]	2.7	7 (16.7%)	5 (71.4%)
	Thailand	2015	yes	yes	no	0.65 (0.60-0.71)	42[e]	4.8	0 (0.0%)	0 (0.0%)
	Australia	2016	yes	no	no	0.74 (0.73-0.75)[c]	42[e]	2.4	17 (36.2%)	0 (0.0%)
	Malaysia	2017	yes	no	yes/no[b]	0.65 (0.56-0.74)	47	0.0	0 (0.0%)	0 (0.0%)
	Singapore	2018	yes	no	no	0.71 (0.64-0.78)	47	0.4	2 (4.3%)	1 (50.0%)
Latin America	Chile	2017	yes	no	yes	0.63 (0.59-0.68)	47	0.0[d]	6 (12.8%)	3 (50.0%)
	Mexico	2016	yes	yes	yes	0.73 (0.69-0.78)	47	8.1	2 (4.3%)	0 (0.0%)
	Guatemala	2017	no	no	yes	0.73 (0.66-0.81)	47	0.0	0 (0.0%)	0 (0.0%)
North America	Canada	2017	yes	yes	yes/no[b]	0.63 (0.61-0.66)[c]	47	3.9	5 (10.6%)	4 (80.0%)
Europe	England (UK)	2016	yes	no	no	0.60 (0.55-0.65)	47	8.6	12 (25.5%)	3 (25.0%)
Africa	South Africa	2017	no	no	yes	0.82 (0.77-0.88)	47	0.0	1 (2.1%)	1 (100.0%)

[a]Only ratings by independent experts are included in this study; ratings by policymakers are not included.

[b]Only provincial ratings were performed online for Canada; two experts provided ratings online rather than through the workshop in Malaysia.

[c]For federal assessment only, not including ratings by provinces and/or states.

[d]There were missings due the fact that survey was organized in several parts, but none of the participating experts selected "cannot rate".

[e]indicators PRICES4, FUND1, MONIT4, and MONIT6 were excluded for Australia; indicators COMP2, PROMO2, RETAIL2, RETAIL4, and FUND3 were added later and were not available within the original Healthy Food Environment Policy Index (Food-EPI) tool used in New Zealand (2014) and Thailand (2015).

[f]This represents the number (percentage) of good practice indicators for which the country was considered a best practice exemplar or benchmark that were also rated at high implementation or at the level of international best practice by the country expert panel.

and Australia) had no infrastructure support indicators rated at "high" implementation. Guatemala and Chile had the highest proportion of the 24 infrastructure support indicators (21%) rated at "very low if any" implementation, while Australia, England, and Malaysia had none of those indicators rated at "very low if any" implementation (Figure 1). The expert panels did not always rate the level of implementation as high or at best practice for good practice indicators where the country under study was considered an international best practice benchmark (Table 2). This was the case for example in Mexico for the tax on sugary drinks and junk food implemented since 2014.

None of the countries included in the study obtained a "high" overall Food-EPI score (overall level of implementation ≥75% compared with international best practices). Australia (50%), England (50%), Chile (51%), and Singapore (57%) obtained a "medium" Food-EPI score, while Guatemala obtained a Food-EPI score at an overall level of implementation of "very low if any" (23%).

The Food-EPI score for the other countries was rated as "low" (36%-48%). For the policy component of the Food-EPI, only Chile and Singapore obtained a "medium" overall level of implementation, while for the infrastructure support component of the Food-EPI, six out of 11 countries obtained a "medium" overall level of implementation (Figure 2). For all countries (except Chile) implementation of infrastructure support was rated higher than implementation of food environment policies.

3.4 | Key priority actions

Although prioritized actions are detailed and country specific, the following policy areas were most frequently prioritized across the 11 countries in order of popularity: increasing taxes on unhealthy foods, restricting unhealthy food promotion to children (through broadcast media, nonbroadcast media, and settings where children gather), front-of-pack labelling, food composition targets on processed foods, and healthy school food policies. The following infrastructure support actions were most frequently prioritized across the 11 countries in order of popularity: the development of a comprehensive nutrition strategy or plan, intake targets for nutrients of concern (sodium, sugar, saturated fat), an increase in political support (e.g. targets on reducing obesity), monitoring nutrition status and intakes of the population, use of evidence in development/implementation of policies, and an increase in funding for population nutrition promotion.

In Appendix 5 a selection of specific actions for the top three policy and infrastructure support domains as prioritized in several countries can be found.

Figure 3 shows the proportion of priority actions that relate to food environment policy and infrastructure support indicators with "very low if any," "low," "medium," and "high" implementation. Only a small proportion of priorities (between 0% and 22%) related to indicators that were rated at "very low if any" implementation. Similarly, only a small proportion of priorities (between 0% and 20%) related to indicators that were rated at the level of international best practice ("high" implementation).

The majority of priorities (between 36% and 92%) related to indicators that were rated at "low" implementation compared with international best practices (Figure 3).

3.5 | Evaluation of the Food-EPI tool and process

The key strengths of the Food-EPI tool, as identified by the key informants, include its comprehensiveness, reliability, and structure.

In addition, the key informants mentioned that stakeholders in their countries viewed it as a strength that indicators were all

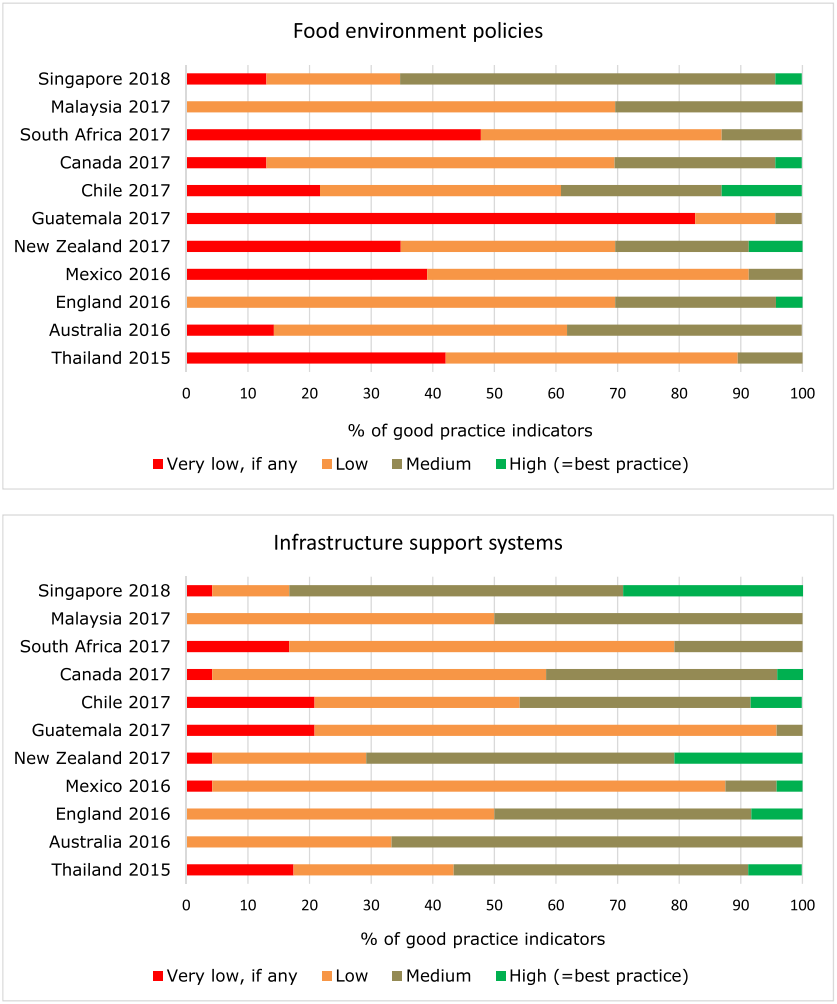

FIGURE 1 Proportion of food environment policies (above) and infrastructure support systems (below) with "very low if any," "low," "medium," or "high" implementation compared with international best practices

extracted from existing high-level policy documents. The key informants also highlighted the importance of the evidence documents to support the ratings by the experts and the fact that those documents were very well received by both experts and government officials. In addition, the tool was seen as flexible for adaptation to the country context while still maintaining comparability to other countries (e.g., in Australia some indicators were excluded while some others were added concerning support for communities in relation to obesity prevention, and both federal and state governments were included in the evaluation).

Some key limitations of the tool were also identified. The instrument is quite long with 47 indicators, despite considerations regarding the balance between comprehensiveness and efficiency. Some indicators were found to be too aggregated as they cover a range of different aspects of policies (e.g., indicators which include targets for different nutrients of concern in processed foods or different settings for healthy food provision policies).

This aggregation proved difficult for Expert Panel Members to provide an assessment, in particular where implementation varied across the different aspects included under a single indicator. For a few indicators, it consistently proved hard to find and document the level of implementation (e.g., funding for population nutrition promotion).

In relation to the process of conducting the Food-EPI, the strengths identified by the key informants were the strong engagement from a wide range of experts, as well as the extensive liaison with policymakers; capacity building for Expert Panel Members and policymakers who indicated that they learnt about food environments and international best practices; the support of the rating process by an extensive evidence document, the inclusion of a priority setting exercise; and the generation of a set of actions that can be used to bring together diverse groups around a common set of advocacy messages.

The strong media attention generated by the publication of the results in several of the countries was viewed as testament to the salience and advocacy potential of the tool.

Some key limitations of the process include the following: that it is time-consuming (i.e. compilation of evidence document, rating workshops, and engagement with policymakers takes a considerable investment of researcher time); that sometimes experts felt uncomfortable to rate indicators if they did not consider themselves experts in certain domains, even with the use of the evidence document; and that some aspects of the process may have influenced the ratings for some countries (e.g., presence of policymakers in the room, collective nature of the rating exercise leading to a negative "herd mentality," and exacerbated by feeding back the scores after each item in some countries). In addition, suggestions were made to have the workshops facilitated by an independent facilitator rather than by the research team(s). The most common limitation identified was the difficulty of rating compared with international best practice exemplars, particularly where those were not aspirational or did not cover all aspects of the good practice

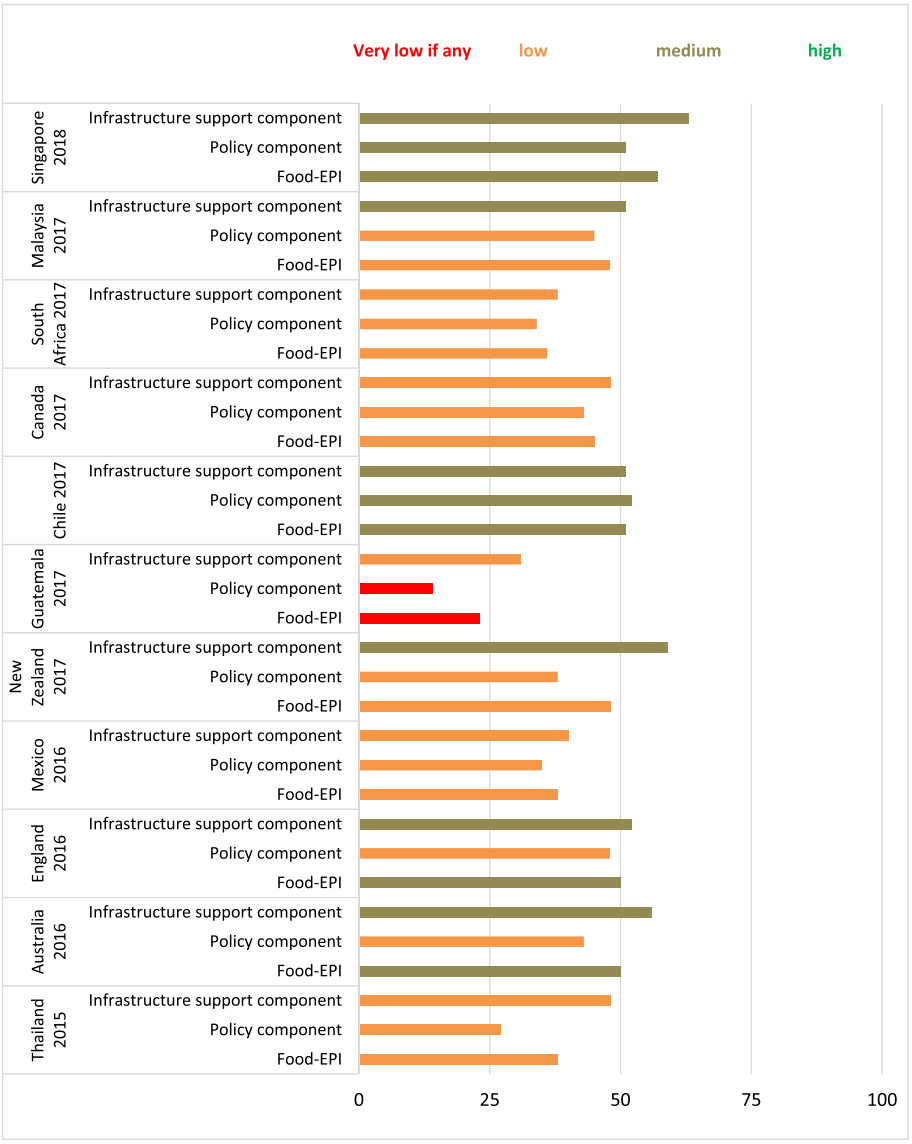

FIGURE 2 The Healthy Food Environment Policy Index overall scores (%) and the policy and infrastructure support component scores (%) by country—very low if any (0%-24%), low (25%-49%), medium (50%-74%), and high (75%-100%) implementation

indicator that was under evaluation. In addition, for some indicators (i.e. funding for population nutrition promotion), it was difficult to know what the true benchmarks were due to lack of available information.

4 | DISCUSSION

The Food-EPI tool and process were developed in 2013 as part of increasing efforts to monitor and benchmark food environments and policies[7] to supplement other already existing monitoring initiatives such as the Global NCD Monitoring Framework.[18]

Eleven countries across different regions completed the full process in the period 2015 to 2018, with New Zealand having applied the Food-EPI twice[9,14] and noted some improvements in the implementation of food environments policies.[14] Overall, inter-rater reliability of the Food-EPI tool was found to be good. The Food-EPI dashboard of indicators shows major implementation gaps in different countries, and the summary scores allow benchmarking across countries as overall Food-EPI scores sufficiently differentiate between countries in regard to extent of policy implementation compared with best practices. None of the countries included in the study obtained a high overall Food-EPI score. Often, countries implement one or two key policies rather than a comprehensive policy package to tackle obesity and NCDs. The best performing country for the policy component of the Food-EPI was Chile, with food labelling and marketing policies at the level of international best practice.[19] Still, the extent of implementation of actions in some other policy areas (e.g., food retail) was relatively low in Chile, suggesting that a comprehensive suite of policies has yet to be implemented across all areas of the food environment. Although the reasons behind the implementation gaps were not investigated in this study, they generally include among others the lobbying by food companies opposing recommended policies, the restricted ability or willingness of governments to implement regulations, and the limited pressure from civil society organizations for

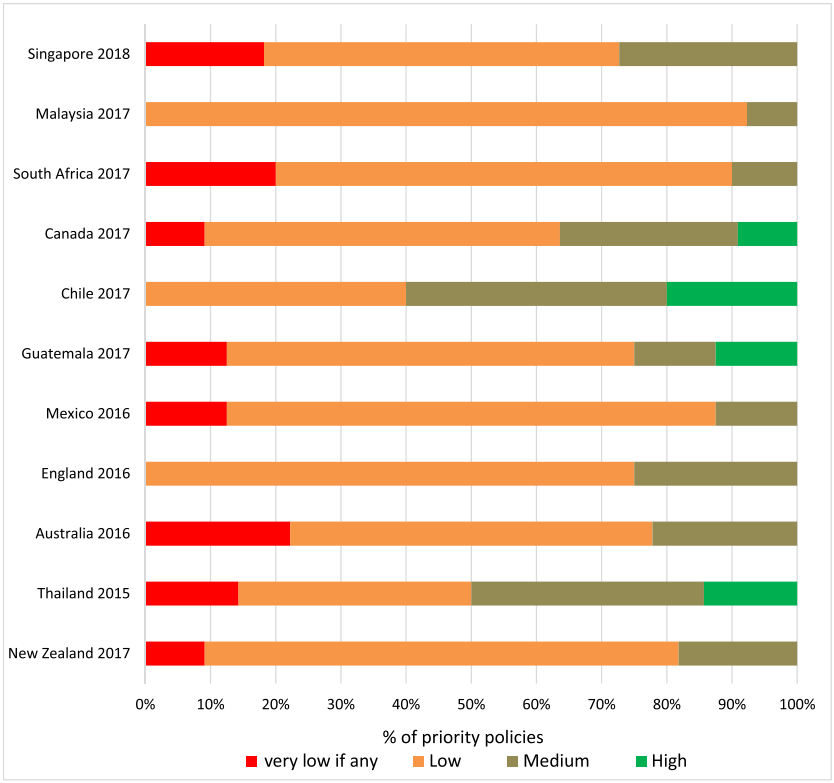

FIGURE 3 Proportion of actions prioritized for food environment policies and infrastructure support indicators with "very low if any," "low," "medium," and "high" implementation

policy action due to restricted capacity and funding and weak coordination.[20] A recent review identified nutrition actor networks, civil society mobilization, robust data systems, and available evidence among other factors driving political commitment for nutrition irrespective of country context.[21] The Food-EPI tool and process may hence contribute to create and strengthen several of these factors driving such commitment.

The Food-EPI provides a useful set of indicators focusing on where government actions are needed most and the process involves a wide range of stakeholders. The Food-EPI has the potential to serve as an educational tool/process as it informs participating experts of food environment policies and best practices, and the resulting scorecards and priorities can be used to support advocacy efforts. In addition, more widespread implementation of the Food-EPI might help identify additional examples of best practice and enrich the World Cancer Research Fund's NOURISHING database including best practice policies from across the globe.[15]

Wider uptake of the Food-EPI tool and process will allow countries to benchmark their food environment policy implementation against other countries and improve their policy environment and infrastructure support systems. The Food-EPI complements WHO progress monitoring indicators[18,22] and provides an in-depth analysis on broader nutrition policies and infrastructure support systems to achieve a healthy food environment. The Food-EPI could serve as a solid platform for the Decade of Action on Nutrition,[23] which stimulates governments to make SMART (Specific, Measurable, Achievable, Relevant, Time-Bound) commitments on nutrition. It is anticipated that benchmarking the extent of implementation of government policies will increase accountability of governments for their actions on food environments.[5] In addition to benchmarking with international peers, repeat assessments, which monitor progress, may hold stakeholders accountable to implement recommended nutrition policies. Changes in political leadership and agendas are likely to influence Food-EPI scores, underscoring the importance of repeating these types of measures over time.

However, the tool and process are complex and time-consuming; these factors may pose difficulties in applying the Food-EPI in its comprehensive form in countries with limited capacity in relation to government nutrition policy or nutrition research. A simpler version of the tool and process would need to be developed for those settings. It needs to be noted however that conducting a repeated Food-EPI becomes less burdensome and resource intensive (as per the New Zealand experience). Expertise in relation to food environment policies is low in some settings but the process aims to provide training and capacity building.

The composition of Expert Panels was quite different across countries (i.e. some countries having stronger NGO or academic representation than others, in some countries, there is greater recognition of obesity/NCDs as a problem than in others, levels of expertise, and education among experts differ), which poses challenges for multicountry comparisons.

To partly address this, we expressed and interpreted data in bands of implementation scores rather than using absolute total scores to rank countries.

Rating against the benchmarks was sometimes difficult but was considered more acceptable for policymakers than rating against theoretical good practice, and it is anticipated that the benchmarks will change and improve over time, if countries continue to implement stronger, more effective policies related to obesity and diet-related NCDs.

In addition, in view of the global ambition for tackling "malnutrition in all its forms" within the UN Decade of action on Nutrition[23] and the Sustainable Development Goals,[24] the indicators as part of the Food-EPI may need to be adjusted, supplemented, or presented in conjunction with indicators related to undernutrition. The development and implementation of a similar tool and process (Physical

Activity Environment Policy Index) to evaluate efforts on creating active environments are also recommended.

5 | CONCLUSION

The Food-EPI has proved to be a reliable and robust tool to benchmark government implementation of recommended food environment policies. It has been successfully implemented in five regions, across 11 countries, proving the applicability and flexibility of the tool across different national contexts.

Evaluation of the tool has consistently demonstrated its value from an accountability perspective as well as in engaging a broad range of stakeholders in relation to nutrition policy. Overall food environment policy implementation varies but is low in most countries and not comprehensive.

Increasing taxes on unhealthy foods, restricting unhealthy food promotion to children, and front-of-pack labelling are the areas most frequently prioritized by experts to improve population nutrition. Government attention and investment are required across all countries to improve the state of food environments and reduce levels of obesity and diet-related NCDs.

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CONFLICT OF INTEREST

No conflict of interest was declared.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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