



Overview of Elements within National Food-Based Dietary Guidelines

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Authors' contributions

This work was carried out in collaboration between all authors. Authors WD, RCTMV and VH initiated and supervised the project. Authors EIVT, TCBM, JJ, LADEV, MR and SPR performed the first, extensive, FBDG search in March-April 2015. They all designed the study, performed the literature searches and the statistical analysis, wrote the protocol and the first draft of the manuscript during the student's project within the Academic Master Cluster of Wageningen University, The Netherlands (project number YMC-60809). Author WD updated the search in the beginning of 2016. Authors EIVT and TCBM managed the additional analysis and revised the final manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Background: Food-Based Dietary Guidelines (FBDG) serve as an approach to provide dietary and lifestyle information with the ultimate goal to contribute to public health. Recommendations for the development and implementation of FBDG are given by the EFSA and the WHO/FAO. An overview of the currently present FBDG and used elements in FBDG is lacking.

Aim: The aims of this study were (1) to provide an overview of all official FBDG that are currently present for the general healthy population, and (2) to get insight in the elements and visual approaches used in these guidelines.

Methodology: A comprehensive internet search was performed to analyse the presence of official FBDG in a total of 226 countries worldwide. Both information content and visual representation of FBDG were reviewed using descriptive statistics.

Results: FBDG were found for 93 out of 226 countries, of which 79 FBDG included a visual representation. Representations of six or seven food groups in FBDG were most common. In 61% of FBDG, cereals were the most prominent food group representing the highest relative amount of food to be eaten. Hierarchical models, such as pyramids, were used about as frequently as non-

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hierarchical models, such as plates. The lifestyle factor “exercise” was mentioned in 85% of FBDG. Non-caloric beverages and exercise were present in the visual representation in 48% and 46% of FBDG, respectively.

Conclusion: 41% of the analysed countries had a national FBDG. Most FBDG included a visual representation, consisted of six or seven food groups and made use of graphic design aspects like colour. FBDG considerably differed regarding the food groups that were represented and graphic design aspects, like hierarchy and shape.

Keywords: (Official) National Food-Based Dietary Guidelines (FBDG); global overview; healthy diet.

ABBREVIATIONS

BMI : Body Mass Index

EFSA : European Food Safety Authority

EUFIC : European Food Information Council

FAO : Food and Agriculture Organization of the United Nations

FBDG : Food-Based Dietary Guidelines

RCT : Randomized Controlled Trial

WHO : World Health Organization

1. INTRODUCTION

Dietary risk factors and physical inactivity are responsible for a large proportion of the major global diseases [1]. Since a proper lifestyle is of critical importance for health, Food-Based Dietary Guidelines (FBDG) play a potential role in improving public health. FBDG serve as an approach to create awareness and provide the public with lifestyle information and practical dietary advice using an understandable vocabulary. This is generally combined with a visual representation to increase the consumers' awareness and understanding [2]. Although the effect of FBDG on eating behaviour has barely been studied, several studies have confirmed the health promoting potential of FBDG by showing that adherence to them reduces the risk for a variety of chronic diseases [3]–[7].

To guide the development of FBDG, the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO) collaborated to generate a report about the development of FBDG [8]. The European Food Safety Authority (EFSA) provided similar advice on how to develop FBDG [2]. The WHO and FAO state that FBDG should focus on public health problems and related nutrients instead of focusing on the discrepancy between recommended intake and actual intake in a population [8]. Recent FBDG have increasingly focused on the relation between food groups and health as well as eating patterns and health, rather than on the single relation between nutrients and health [9,10]. Moreover, it is

recommended to consider cultural and economic factors when developing FBDG, as these factors could influence the intake of foods. Finally, the consequence of the advice should be taken into account [8]. An advice to increase the consumption of one food may for example result in a decreased consumption of another food, thereby negatively influencing overall nutrient intake. Overall, general recommendations for the implementation of FBDG and inclusion of a visual representation are provided by EFSA and WHO/FAO [2,8].

FBDG may differ between countries because of differences in intended target audience, application and focus, which are all related to specific health problems a country may like to address [2]. The focus of developed countries is often related to diseases of affluence. For example, the guidelines of the United States of America focus especially on overweight, and mentions physical activity in relation to overweight [11]. Unlike developed countries, many developing countries struggle with the double burden of disease. South Africa is an example of a country that tried to create a FBDG that involves the double burden of disease [8], [12]. There is no single FBDG that is suitable for every country or region, because of country specific differences in health and nutrition related issues, nutritional habits and food preferences. Two global overviews of FBDG are published by the FAO and the Chinese Nutrition Society, and an overview of the FBDG of European countries is published by the European Food Information Council (EUFIC) [13]–[16]. While the overview of the FAO included 83 countries, the Chinese Nutrition Society 47 countries and the EUFIC 31 countries, this study resulted in an overview of all national FBDG that are present worldwide (93 countries) including an analysis of the features of those FBDG. The aims of this study were (1) to provide an overview of all official FBDG currently present for the general healthy population, and (2) to get insight in the used elements and visual approaches.

2. METHODS

2.1 Search for FBDG

In March and April 2015, an internet search was performed to screen the presence of official FBDG in countries worldwide. In the beginning of 2016, we updated this search with the recently published FBDG and their visual models (United States of America, United Kingdom, Sweden, Ireland and the Netherlands). We only considered FBDG that were published and/or endorsed by a government. The search for FBDG was initiated with the list of FAO member countries (194 countries) [13]. The search was supplemented with 32 non-FAO member nations that were found during the internet search to have FBDG. As a result, a total of 226 countries from the continents Africa, Asia, Europe, North America, Oceania and South America were analysed (a complete list of analysed countries is shown in Appendix A). Applied search terms were: *Food(-)Based Dietary Guidelines 'name country'*. This literature research was initially performed in the English language and when needed, in the official language of the country. Governmental websites of national ministries of health and WHO websites were primary information sources. FBDG were included when either a visual model and/or consumer brochure was found. FBDG only directed at the general (healthy adult) population were taken into account.

2.2 Analysis of Elements in FBDG

To score the various elements present in FBDG, we created a scoring-list. Various elements of FBDG were inventoried in five categories, namely general information, graphic design aspects, lifestyle factors, food groups and food items. Food groups were based on the food list of the FAO [17]. After orientation on the possible options per category of the FBDG and the authors' knowledge of the field, scoring options were defined per element (Appendix B, Table I).

In each category, except for general information, predefined answer options were used to allow consistent scoring of the FBDG-features between the six authors involved.

2.3 Data Analysis

Frequencies of graphic design aspects, presence of lifestyle factors and food groups in the visual representation and/or consumer brochure of the FBDG were analysed using descriptive statistics. Frequencies of FBDG were both determined worldwide and per continent. All analyses were performed using SPSS version 20.

3. RESULTS

3.1 Inventory of Worldwide Official FBDG

Among the 226 countries included in the internet search (Appendix A), the presence of official FBDG was identified in a total of 103 individual countries of which 11 countries were found to share one set of FBDG (Table 1). This resulted in 93 FBDG to be analysed. The percentage of countries with official FBDG per continent was highest in North America (77%) and Europe (67%), whereas the percentage of countries with an official FBDG was lowest in Africa (12%). No official FBDG were detected for 123 out of 226 countries.

All 93 identified FBDG were taken into account in the data analysis (Table 1) and all results are shown in Appendix B and C, and supplementary Appendix D. When the overall make-up of the FBDG was considered, 11 were found to consist of written messages only (FBDG from Brazil, Chile, El Salvador, Georgia, Ghana, Indonesia, Italy, Macedonia, Mauritius, Nepal and New-Zealand), whereas 79 FBDG were found to consist of a visual representation. Three FBDG (Greenland, Malawi and Sweden) were found to consist of mainly text and only minor visual representations.

Table 1. Number of official FBDG identified per continent

Continent	Africa	Asia	Europe	North America	Oceania	South America	Total
Number of countries included in screening	58	43	51	13	15	46	226
Number of official FBDG identified	7	18*	34	10	4	20	93
Percentage of countries with an official FBDG (%)	12	65	67	77	27	43	54

* Including one FBDG shared between 11 countries (Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates and Yemen).

3.2 Food Groups

The food groups that were analysed in various FBDG are listed in Appendix B, Table I. Differences in the presence of food groups, food items and nutrients were identified between FBDG (Appendix B, Tables II and III). The following paragraphs summarize the most remarkable observations.

3.2.1 Most prominent food groups

The food groups (Appendix B) of 93 FBDG were analysed regarding their representation of the relative amount of food to be eaten. In 57 FBDG (61%) cereals were the most prominent food group representing the highest relative amount of food to be eaten followed by non-caloric beverages in eight FBDG (9%) and fruits and vegetables in six FBDG (7%).

3.2.2 Protein-rich foods

The following groups were identified when analysing the protein rich food: fish, meat, eggs, dairy products, fish and meat, fish, meat and eggs, fish, meat and dairy products, fish, meat, eggs and dairy products (Table 2). In most FBDG, dairy products represented a separate group. Furthermore, a separate food group combining fish, meat and eggs was seen in 40 FBDG (43%) and 21 FBDG (23%) contained a food group that combined fish, meat, eggs and dairy products. As some FBDG used more than one of these protein-rich food groups (e.g. a separate food group for fish and a separate food group for meat), cumulative percentages in Table 2 are above 100%.

3.2.3 Sugars and/or sweeteners

Some FBDG mentioned sugars and/or sweeteners as separate food groups, while other grouped them together with fats as discretionary foods. In the visual models sugars and/or sweeteners were sometimes placed outside the

model, and sometimes placed within. In this FBDG analysis, sugars and/or sweeteners were mentioned in 82 FBDG (88%). Sugars and/or sweeteners were presented as a separate group in 47 FBDG (51%), whereas sugars and/or sweeteners were mentioned in 27 FBDG (29%) in the consumer brochure (Table 3).

Table 2. Presence of fish, meat, eggs and dairy products within FBDG (n=93)

Food groups	Percentage of FBDG (%)
Dairy products	55
Fish, meat and eggs	43
Fish, meat, eggs and dairy products	23
Fish and meat	10
Fish, meat and dairy products	4
Meat	6
Fish	4
Eggs	1

3.2.4 Oils and fats

Oils and fats were mentioned in all 93 FBDG, except for the FBDG of Singapore (supplementary Appendix D). Oils and fats were mostly presented as a group in the visual representation, namely in 64 FBDG (69%). Furthermore, 22 FBDG (24%) mentioned oils and fats in the consumer brochure e.g. 'choose low-fat products' (e.g. low-fat options of dairy products) or choose products rich in 'good' fats (omega-3- and omega-6-fatty acids) like fish as a source of omega-3-fatty acids (Table 3).

3.2.5 Salt

Salt was mentioned in 83 out of 93 FBDG (89%). Salt was shown in the visual representation as food group in 16 FBDG (17%). In six FBDG (6%), salt was presented in the visual representation in another form (e.g. as supportive text or as image outside the figure). Salt was mentioned in the consumer brochure in 61 FBDG (66%, Table 3).

Table 3. Presence of sugars and/or sweeteners, oils and fats and salt within FBDG (n=93)

	Sugars and/or sweeteners (%)	Oils and fats (%)	Salt (%)
Image as part of visual representation	2	1	0
Image as group of visual representation	51	69	17
Image outside of figure	3	2	3
In supportive text in figure	3	3	3
In supportive text in consumer brochure	29	24	66
Not present	12	1	11

3.3 Beverages in FBDG

The presence of beverages was analysed in 93 FBDG (Appendix B, Table III). Water, coffee and tea were grouped under non-caloric beverages. Light soft drinks were not taken into account in this study [17].

3.3.1 Non-caloric beverages

Ten FBDG (11%) did not mention non-caloric beverages, neither in the consumer brochure nor in the figure. Non-caloric beverages were exclusively mentioned in the consumer brochure in 37 FBDG (40%), whereas 45 FBDG (48%) depicted non-caloric beverages in the visual representation (Table 4).

3.3.2 Alcoholic beverages

Four FBDG (4%) depicted alcoholic beverages in the visual representation. Alcohol was mentioned in 44 FBDG (47%) in the consumer brochure (Table 4). Alcoholic beverages were not mentioned in 43 FBDG (46%), neither in the visual representation nor in the consumer brochure.

3.4 Lifestyle Factors

The presence of lifestyle factors “healthy bodyweight maintenance” and “exercise” were analysed in 93 FBDG (Appendix B, Table IV).

3.4.1 Healthy bodyweight maintenance

Recommendations on the lifestyle factor “healthy bodyweight maintenance” were mentioned in 51 out of 93 the FBDG (55%) of which 50 FBDG (54%) exclusively mentioned healthy bodyweight maintenance in the consumer brochure and one FBDG (1%) mentioned healthy bodyweight maintenance in the supportive text of the figure only (supplementary Appendix D: FBDG of Namibia). In 42 FBDG (45%), no sentence or visual representation of healthy bodyweight

maintenance and/or Body Mass Index (BMI) was present in the figure or consumer brochure. An overview of the amount of FBDG that mentioned healthy bodyweight maintenance is shown in Appendix B, Table IV.

3.4.2 Exercise

The lifestyle factor “exercise” was present in 85% of analysed FBDG. 43 FBDG (46%) showed exercise (as image or supportive text) in the figure, outside the figure or as group of the figure. Exercise was exclusively mentioned in the consumer brochure in 36 FBDG (39%), while 14 FBDG (15%) did not mention exercise at all (Appendix B, Table IV). The FBDG of Japan and South-Korea are examples of how advice on exercise can be present in the visual representation of FBDG (supplementary Appendix D).

3.5 Graphic Design Aspects in FBDG

Graphic design aspects were analysed in 79 FBDG which contained a visual representation.

3.5.1 Number of groups, hierarchy and shape

The 79 FBDG with a visual representation were ranked per number of food groups present in the visual representation. Representation of six or seven food groups were found to be most common in analysed FBDG, together covering more than half of the analysed FBDG (24 (30%) and 22 (28%) FBDG, respectively; Fig. 1A). Some form of hierarchy was observed in 46 FBDG (58%). So, hierarchical models (such as pyramids) were used about as frequently as non-hierarchical models (such as plates). A FBDG was considered hierarchical when the visual representation showed a clear ranking of groups, e.g. in the cases of Belgium and Paraguay (supplementary Appendix D). The shape of a pyramid was used in 29 FBDG (37%) (Fig. 1B). A national symbol, e.g. the Food Pagoda of China (supplementary Appendix D), was seen in nine FBDG (11%) (Fig. 1B).

Table 4. Presence of beverages within FBDG (n=93)

	Non-caloric beverages (%)	Alcoholic beverages (%)
Image as part of visual representation	13	-
Image as group of visual representation	16	-
Image outside of figure	19	4
In supportive text in figure	1	2
In supportive text in consumer brochure	40	47
Not present	11	46

3.5.2 Colours

Of all analysed 79 FBDG with a visual representation, a single colour was observed in 26 FBDG (33%). 44 FBDG used multiple colours (43%), although only 10 FBDG used colours with a message (13%) (e.g. a 'traffic light' system in the FBDG of Malaysia or Ireland: using green to identify groups to encourage, and red to identify groups to discourage (supplementary Appendix D)). The use of descriptive colours, e.g. blue for dairy or yellow for grains, was not considered as meaningful, indicative colour. Such descriptive colours informed the consumer about the content of the group, but do not attach value to it, e.g. whether to approach or avoid that particular group. Lastly, nine FBDG (11%) showed no colour. These FBDG consisted of boxes full of photographs and/or drawings of food products without the use of background colour (Fig. 1C).

3.5.3 Representation of foods

The visual representation of 79 FBDG was judged based on the presence of photographs

and/or drawings. Fig. 1D indicates that 28 FBDG (35%) showed only drawings, 36 FBDG (46%) showed only photographs and 12 FBDG (15%) showed both photographs and drawings. A total of three FBDG (4%) neither demonstrated photographs nor drawings while they were a visual FBDG by showing text in the figure, e.g. My Plate of the United States of America (supplementary Appendix D).

3.5.4 Text in figure

34 out of 79 FBDG (43%) only contained descriptive text. Descriptive text was defined as text in the figure describing the visual representation of the photographs and/or drawings (e.g. "fruits and vegetables" above the visual representation of fruits and vegetables). Ten FBDG (13%) only contained supportive texts. Supportive text was defined as text in the figure giving advice (e.g. eat moderate) or representing quantities (e.g. amount of servings a day), thereby providing additional information to the figure. Both descriptive and supportive text was presented in 23 FBDG (29%) (Appendix C).

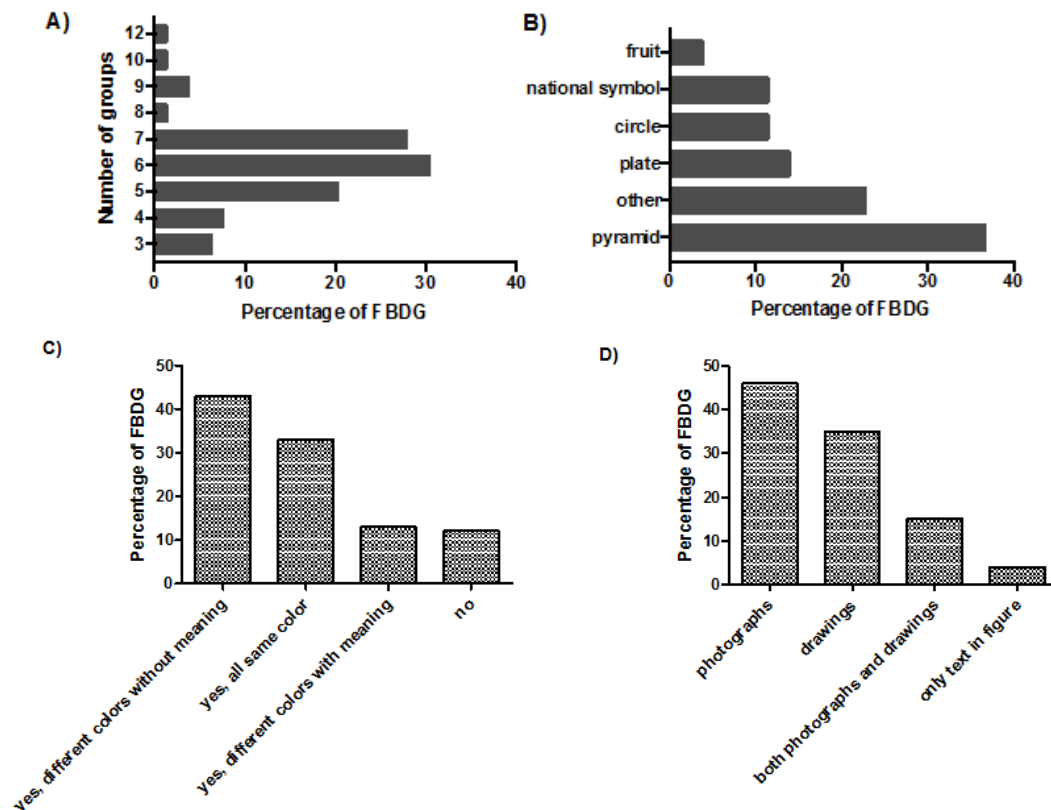


Fig. 1. Number of food groups (A), shape (B), colours (C) and representation of foods (D) within the FBDG with a visual representation (n=73)

3.5.5 Indication of quantities

An indication of the recommended quantities of the different food groups were depicted in FBDG in various manners: proportional surfaces, text in figure or text in consumer brochure. As most FBDG used more than one option to describe these quantities, cumulative percentages in Table 5 were above 100%. Indication of quantities in the consumer brochure was present in 58 out of 79 FBDG (74%), of which 33 FBDG (42%) mentioned absolute amounts, while 25 FBDG (32%) mentioned relative amounts. In 24 out of 79 FBDG (30%) the quantities were present in the figure itself, of which 19 FBDG (24%) mentioned absolute amounts and five FBDG (6%) mentioned relative amounts. Visualization of quantities in the figure as proportional surfaces was shown in 62 FBDG (78%) (Table 5).

Table 5. Indication of quantities in FBDG (figure or consumer brochure) (n=79)

Categories of indication of quantities	Percentage of total FBDG (%)
Proportional surfaces in figure	78
Absolute amounts in text	42
Relative amounts in text	32
Absolute amounts in figure	24
Relative amounts in figure	6

4. DISCUSSION

The objectives of this study were to provide a complete overview of all official national FBDG for the general healthy population currently present worldwide, and to get insight into the content and (visual) elements used in these FBDG. Of the 226 countries analysed, 93 had an official, national FBDG of which 79 contained a visual representation. Continents with the highest percentage of countries with an official FBDG were North America (77%) and Europe (67%). Africa was the continent with the lowest percentage of FBDG (12%).

It was found that representations of six or seven food groups in a FBDG were most common. Cereals were mentioned in 61% of the FBDG as the most prominent food group representing the highest relative amount of food to be eaten. Furthermore, oils and fats were mentioned in 99% of FBDG in the visual representation or consumer brochure. These findings could be explained by the fact that a balanced diet is

recommended and the main energy sources in foods are carbohydrates and fats [2]. Furthermore, the lifestyle factors “exercise” and “healthy bodyweight maintenance” were present in several FBDG. Although strictly not food related, their contribution to the energy balance, which is pivotal to health justifies their presence in FBDG [2]. The lifestyle factors “healthy bodyweight maintenance” and “exercise” were mentioned in respectively 55% and 85% of FBDG. Besides oils and fats (99%), most FBDG mentioned sugars and/or sweeteners (88%) and salt (89%) in their visual representation or consumer brochure. In addition, non-alcoholic beverages were mentioned in 89% and alcoholic beverages in 54% of FBDG. The mere presence of food groups in FBDG may not by itself be a message of encourage or discourage. However, descriptive texts and graphic design aspects (e.g. colours, shape) may indicate encouragement or discouragement of certain food groups. For example, in case of oils and fats, texts as “choose low-fat products” and “choose products rich in ‘good’ fats like fish as a source of omega-3-fatty acids” were used. In case of alcoholic beverages, the FBDG of India stated “abstain from drinking alcohol” whereas the FBDG of Greece showed a glass of wine near the foods that can be consumed daily with the message “wine in moderation” (supplementary Appendix D).

So, a plethora of different approaches concerning the visual representation of a FBDG was observed which could influence the interpretation of the FBDG message. Graphic design aspects ranged from meaningful colours, drawings and photographs, and no text to no colour, no drawing nor photographs and only text. There is however, limited knowledge on the potential impact of graphic design aspects on consumer liking, understanding and use of FBDG.

Our study showed that of the 79 FBDG with a visual representation, hierarchical models (such as a pyramid) were used about as frequently as non-hierarchical models (such as plates and circles). According to the literature, the hierarchical format is valued superior in communicating moderation and proportionality [16,18]. On the other hand, the hierarchical format has been repeatedly criticized as it seems counterintuitive to show what “is best” at the bottom and what “is worst” at the top [16,19]. The circle format has been praised for its popularity among consumers and its superior ability to

convey diet composition and diet-related concepts [16,20]. It remains to be investigated whether the shape of national symbols have additional value when applied in the visual representation of FBDG.

Furthermore, 89% of the FBDG with a visual representation used colour in representing their messages. Colour can generate attention, certain automatic biological reactions and emotional responses [21,22]. Warm colours are more exciting (e.g. red or yellow), whereas cool colours (e.g. blue or green) are more relaxing. A fair balance of colour intensity and coherency benefits consumer satisfaction. Responses to colour are quite consistent, though some individual and cultural differences exist. Descriptive colour use was regularly observed in our study, e.g. green for vegetables and fruits, blue for dairy. The aforementioned 'traffic light' representation makes use of colour-coding with the green end containing products that are recommended, and the red end containing products that are discouraged [23]. A risk of the use of colour-coding is the potential confusion between the cognitive interpretation and emotional response of colour, e.g. the colour red can be experienced both as exciting and as a warning sign [21].

Drawings were only used in 28 FBDG, 36 FBDG only displayed photographs and 12 FBDG showed both photographs and drawings. In addition, 34 out of 79 FBDG only contained descriptive text, ten FBDG only supportive text and 23 FBDG both. Previous studies with respect to the presence of photographs, drawing or text in a figure are performed to elucidate the clearest way of communication. It is known that consumers are able to recall information better when food products are few and drawn, rather than many and photographic [20]. Thus, simplifying presented information can contribute to increased memory retrieval. Photographs have faster and more automatic access to what they portray than to what they are named, while words have faster and more automatic access to what they are named than to what they portray [24]. On the other hand, the process of extracting information from pictures is slower and more attention demanding. Although, FBDG with realistic photographs require more effort to recall what they portray, they did recall more far-reaching, vivid meanings. A photographic FBDG is preferred by consumers as well [20]. In addition, the use of symbols is associated with more accurate identification of food groups

containing certain discretionary nutritional values [18]. Moreover, words and pictures differ in the speed and effort needed to retrieve information [24]. Adding descriptive labels to food groups in FBDG may increase the ease to identify and categorise photographic information [25]. Photographs and/or drawings lack the ability to stress topics of attention into detail. This implies that the visual information must at least be supported by explanatory materials if the full range of the FBDG is understood well [18]. By the representation of foods in photographs, drawings or text a continuous trade-off should be made between simplifying information for manageability and keeping a degree of detail for the imagination of and understanding by the consumer.

This is, to our knowledge, the first study showing an extensive overview of all official national FBDG present worldwide in which the elements and visual approaches in national FBDG were analysed. A limitation of this study is the involvement of six researchers in scoring the various elements of FBDG. Though predefined answer categories were used to minimize variation in scoring, individual differences in interpretation of FBDG and categorising the various elements cannot be excluded. Secondly, the scoring of elements of FBDG was performed according to a list that the authors constructed based on their own observations. We may therefore not have included all possible elements that one may find in FBDG. Thirdly, as FBDG text messages that were not in Dutch or English were translated, some mistakes may have been introduced. Lastly, the total number of 226 countries was based on the officially FAO recognized 194 countries [13], which were complemented by 32 countries that came up in the internet search also having national FBDG. This may account for possible discrepancies between the list of countries in this paper and other country-lists.

In addition to these limitations of this study, there are knowledge gaps regarding the effectiveness of the different FBDG. We found no studies investigating the effectiveness of FBDG on improving health of the general population. Moreover, an extensive variety of social and physical environmental factors influence food choice behaviour [26]. Therefore, liking, understanding and intentional use are the main factors to be investigated in direct relation to FBDG. Several studies (predominantly in the United States of America) were conducted to

investigate the awareness, understanding and use of FBDG as reviewed by Brown et al. [27]. Most studies focussed on awareness and understanding of FBDG. Generally, a greater awareness of visual representation compared to the written FBDG guidelines seemed to exist and increased awareness may possibly occur over time during the years after introduction of FBDG. This, however, did not directly translate to increased understanding. Though some studies showed a general understanding of key concepts of FBDG, more abstract concepts such as portion sizes and quantities, appeared to be more difficult to understand. Few studies exist on intended use or actual use of FBDG by consumers [27]. Ideally, randomized controlled trials (RCTs) should test the use and effectiveness of FBDG. However, such studies are difficult to perform as it is challenging to obtain a control group which has not been exposed to FBDG. Further research needs to be carried out to assess the use and effectiveness of FBDG and how various elements employed within FBDG may affect their appeal, understanding and use.

5. CONCLUSION

In conclusion, an official, national FBDG was found in 41% of the analysed countries. Most FBDG included a visual representation. Common elements were the inclusion of six or seven food groups, the use of colour, and mentioning lifestyle factors. However, FBDG were considerably different in representation of food groups and graphic design aspects (like hierarchy and shape). How these features affect implementation and effectiveness of FBDG would be an area of further research.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX A

Table 1. Countries analysed for the presence of official FBDG per continent (abbreviated names are mentioned plus official names when available)

Africa	Europe	South America	Asia	Oceania	North America
Algeria ² (the People's Democratic Republic of Algeria)	Albania ¹ (the Republic of Albania)	Anguilla (UK)	Afghanistan (the Islamic Republic of Afghanistan)	Australia ¹ (Australia)	Belize ¹ (Belize)
Angola (the Republic of Angola)	Andorra (the Principality of Andorra)	Antigua and Barbuda ¹ (Antigua and Barbuda)	Azerbaijan (the Republic of Azerbaijan)	Fiji ¹ (the Republic of Fiji)	Bermuda ¹
Benin ¹ (the Republic of Benin)	Armenia (the Republic of Armenia)	Argentina ¹ (the Argentine Republic)	Bahrain ² (the Kingdom of Bahrain)	Indonesia ¹ (the Republic of Indonesia)	Canada ¹ (Canada)
Botswana (the Republic of Botswana)	Austria ¹ (the Republic of Austria)	Aruba	Bangladesh ¹ (the People's Republic of Bangladesh)	Kiribati (the Republic of Kiribati)	Clipperton Islands
Burkina Faso (Burkina Faso)	Azerbaijan (the Republic of Azerbaijan)	Barbados ¹ (Barbados)	Bhutan (the Kingdom of Bhutan)	Marshall Islands (the Republic of the Marshall Islands)	Costa Rica ¹ (the Republic of Costa Rica)
Burundi (the Republic of Burundi)	Belarus (the Republic of Belarus)	Bolivia (the Plurinational State of Bolivia)	Brunei (Brunei Darussalam)	Micronesia (the Federated States of Micronesia)	El Salvador ¹ (the Republic of El Salvador)
Cameroon (the Republic of Cameroon)	Belgium ¹ (the Kingdom of Belgium)	Bonaire (Neth.)	Cambodia (the Kingdom of Cambodia)	Nauru (the Republic of Nauru)	Guatemala ¹ (the Republic of Guatemala)
Cabo Verde (Republic of Cabo Verde)	Bosnia and Herzegovina ¹ (Bosnia and Herzegovina)	Brazil ¹ (the Federative Republic of Brazil)	China ¹ (the People's Republic of China)	New Zealand ¹ (New Zealand)	Honduras ¹ (the Republic of Honduras)

Africa	Europe	South America	Asia	Oceania	North America
Central African Republic (Central African Republic)	Bulgaria ¹ (the Republic of Bulgaria)	British Virgin Islands (UK)	East Timor (the Democratic Republic of Timor-Leste)	Palau (the Republic of Palau)	Mexico ¹ (the United Mexican States)
Chad (the Republic of Chad)	Croatia ¹ (the Republic of Croatia)	Cayman Islands (UK)	India ¹ (the Republic of India)	Papua New Guinea (Independent State of Papua New Guinea)	Nicaragua (the Republic of Nicaragua)
Comoros (the Union of the Comoros)	Cyprus ¹ (the Republic of Cyprus)	Chile ¹ (the Republic of Chile)	Iran ¹ (the Islamic Republic of Iran)	Samoa (the Independent State of Samoa)	Panama ¹ (the Republic of Panama)
Democratic Republic of Congo (the Democratic Republic of the Congo)	Czech Republic (the Czech Republic)	Colombia ¹ (the Republic of Colombia)	Iraq ² (the Republic of Iraq)	Solomon Islands (Solomon Islands)	Saint Pierre and Miquelon
Cote D'Ivoire (the Republic of Côte d'Ivoire)	Denmark ¹ (the Kingdom of Denmark)	Cuba ¹ (the Republic of Cuba)	Japan ¹ (Japan)	Tonga (the Kingdom of Tonga)	United States ¹ (the United States of America)
Djibouti (the Republic of Djibouti)	Estonia ¹ (the Republic of Estonia)	Curacao	Jordanian ² (the Hashemite Kingdom of Jordan)	Tuvalu (Tuvalu)	
Egypt ² (the Arab Republic of Egypt)	Finland ¹ (the Republic of Finland)	Dominica ¹ (the Commonwealth of Dominica)	Kazakhstan (the Republic of Kazakhstan)	Vanuatu (the Republic of Vanuatu)	
Equatorial Guinea (the Republic of Equatorial Guinea)	France ¹ (the French Republic)	Dominican Republic ¹ (the Dominican Republic)	Kyrgyzstan (the Kyrgyz Republic)		
Eritrea (the State of Eritrea)	Georgia ¹ (Georgia)	Ecuador (the Republic of Ecuador)	Kuwait ² (the State of Kuwait)		
Ethiopia (the Federal Democratic Republic of Ethiopia)	Germany ¹ (the Federal Republic of Germany)	Falklands Islands (UK)	Laos (the Lao People's Democratic Republic)		
Gabon (the Gabonese Republic)	Greece ¹ (the Hellenic Republic)	French Guiana (Fr.)	Lebanon ¹ (the Lebanese Republic)		
Gambia (the Republic of the Gambia)	Greenland ¹	Grenada ¹	Macau		

Africa	Europe	South America	Asia	Oceania	North America
Ghana ¹ (the Republic of Ghana)	Hungary ¹ (Hungary)	Guadeloupe (Fr.)	Malaysia ¹		
Guinea (the Republic of Guinea)	Iceland ¹ (the Republic of Iceland)	Guyana ¹ (the Republic of Guyana)	Maldives (the Republic of Maldives)		
Guinea-Bissau (the Republic of Guinea-Bissau)	Ireland ¹ (Ireland)	Haiti (the Republic of Haiti)	Mongolia ¹ (Mongolia)		
Kenya (the Republic of Kenya)	Israel ¹ (the State of Israel)	Jamaica ¹	Myanmar/Burma (the Republic of the Union of Myanmar)		
Lesotho (the Kingdom of Lesotho)	Italy ¹ (the Republic of Italy)	Martinique (Fr.)	Nepal ¹ (the Federal Democratic Republic of Nepal)		
Liberia (the Republic of Liberia)	Kosovo	Montserrat (UK)	North-Korea (the Democratic People's Republic of Korea)		
Libya (Libya)	Latvia ¹ (the Republic of Latvia)	Navassa Island (US)	Oman ^{1,2} (the Sultanate of Oman)		
Madagascar (the Republic of Madagascar)	Liechtenstein	Paraguay ¹ (the Republic of Paraguay)	Pakistan (the Islamic Republic of Pakistan)		
Malawi ¹ (the Republic of Malawi)	Lithuania ¹ (the Republic of Lithuania)	Peru (the Republic of Peru)	Philippines ¹ (the Republic of the Philippines)		
Mali (the Republic of Mali)	Luxembourg (the Grand Duchy of Luxembourg)	Puerto Rico (US) ¹	Qatar ² (the State of Qatar)		
Mauritania (the Islamic Republic of Mauritania)	Macedonia ¹ (The former Yugoslav Republic of Macedonia)	Saba (Neth.)	Russia (the Russian Federation)		
Mauritius ¹ (the Republic of Mauritius)	Malta ¹ (the Republic of Malta)	Saint barthélemy (Fr.)	Saudi-Arabia ^{1,2} (the Kingdom of Saudi Arabia)		
Mayotte	Moldova (the Republic of Moldova)	Saint Kitts and Nevis ¹	Singapore ¹ (the Republic of Singapore)		
Morocco (the Kingdom of Morocco)	Monaco (the Principality of Monaco)	Saint Lucia ¹ (Saint Lucia)	South-Korea ¹ (the Republic of Korea)		
Mozambique (the Republic of Mozambique)	Montenegro (Montenegro)	Saint Martin (Fr.)	Sri Lanka ¹ (the Democratic Socialist Republic of Sri Lanka)		

Africa	Europe	South America	Asia	Oceania	North America
Namibia ¹ (the Republic of Namibia)	Norway ¹ (the Kingdom of Norway)	Saint Vincent and the Grenadines ¹ (Saint Vincent and the Grenadines)	Syria (the Syrian Arab Republic)		
Niger (the Republic of the Niger)	The Netherlands ¹ (the Kingdom of the Netherlands)	Sint Eustatius (Neth.)	Tajikistan (the Republic of Tajikistan)		
Nigeria ¹ (the Federal Republic of Nigeria)	Poland ¹ (the Republic of Poland)	Sint Maarten	Thailand ¹ (the Kingdom of Thailand)		
Republic of the Congo (the Republic of the Congo)	Portugal ¹ (the Portuguese Republic)	South Georgia and South Sandwich Islands (UK)	Turkmenistan (Turkmenistan)		
Réunion (France)	Romania ¹ (Romania)	The Bahamas ¹ (the Commonwealth of the Bahamas)	United Arab Emirates ² (the United Arab Emirates)		
Rwanda (the Republic of Rwanda)	San Marino (the Republic of San Marino)	Suriname (the Republic of Suriname)	Uzbekistan (the Republic of Uzbekistan)		
Saint Helena, Ascension and Tristan da Cunha (UK)	Serbia (the Republic of Serbia)	Trinidad and Tobago (the Republic of Trinidad and Tobago)	Viet Nam ¹ (the Socialist Republic of Viet Nam)		
São Tomé and Príncipe (the Democratic Republic of Sao Tome and Principe)	Slovakia (the Slovak Republic)	Turks and Caicos Islands	Yemen ² (the Republic of Yemen)		
Senegal (the Republic of Senegal)	Slovenia (the Republic of Slovenia)	United States Virgin Islands			
Seychelles (the Republic of Seychelles)	Spain ¹ (the Kingdom of Spain)	Uruguay ¹ (the Eastern Republic of Uruguay)			
Sierra Leone (the Republic of Sierra Leone)	Sweden ¹ (the Kingdom of Sweden)	Venezuela ¹ (the Bolivarian Republic of Venezuela)			
Somalia (the Federal Republic of Somalia)	Switzerland ¹ (the Swiss Confederation)				
South Africa ¹ (the Republic of South Africa)	Turkey ¹ (the Republic of Turkey)				
South Sudan (the Republic of South Sudan)	Ukraine (Ukraine)				

Africa	Europe	South America	Asia	Oceania	North America
Sudan (the Republic of the Sudan)	United Kingdom ¹ (the United Kingdom of Great Britain and Northern Ireland)				
Swaziland (the Kingdom of Swaziland)	Vatican City				
Tanzania (the United Republic of Tanzania)					
Togo (the Togolese Republic)					
Tunisia (the Republic of Tunisia)					
Uganda (the Republic of Uganda)					
Western Sahara					
Zambia (the Republic of Zambia)					
Zimbabwe (the Republic of Zimbabwe)					

¹ Country with official FBDG

² Country shares one FBDG with ten other countries

APPENDIX B

Table I. Scoring options per item used to evaluate official FBDG worldwide

Item	Scoring options
General information	Open answers
<ul style="list-style-type: none"> Country Name of FBDG Source (developed by) Year published Years since last update FBDG available for other population groups FAO reference 	
Graphic design aspects	
<ul style="list-style-type: none"> Number of groups Hierarchy of figure Shape Colour Representation of foods Text in figure Indication of quantities 	<p>1; 2; 3; 4; 5; 6; 7; N/A</p> <p>Yes; No; N/A</p> <p>Circle; plate; pyramid; fruit; national symbol; other; N/A</p> <p>All boxes in one colour (white or other); different colours between boxes (no significance); different colours between boxes (significance); N/A</p> <p>Photographs; drawings; both photographs and drawings; only text in figure; N/A</p> <p>Yes, only supportive text in figure; yes, only descriptive text in figure; both supportive and descriptive text in figure; no text used in figure; N/A</p> <p>Surface proportional to daily recommended intake; relative amounts present in figure; absolute amounts present in figure; relative amounts present in text; absolute amounts present in text; not present</p>
Lifestyle factors	
<ul style="list-style-type: none"> Healthy bodyweight maintenance Exercise 	<p>Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present</p> <p>Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present</p>
Food groups	
<ul style="list-style-type: none"> Cereals Vegetables Fruits Fruits and vegetables Cereals, fruits and vegetables Nuts and seeds 	<p>Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)</p> <p>Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)</p> <p>Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)</p> <p>Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)</p> <p>Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)</p> <p>Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)</p>

• Fish	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Meat	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Eggs	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Dairy products	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Fish and meat	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Fish, meat and eggs	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Fish, meat and dairy products	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Fish, meat, eggs and dairy products	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Oils and fats	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Sugars and syrups	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Oils, fats, sugars and syrups	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Beverages	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
• Miscellaneous	Present; not present / order of food group (i.e. representation of the relative amount of food to be eaten)
Food items	
• Alcoholic beverages	Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present
• Non-caloric beverages	Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present
• Oils and fats	Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present
• Salt	Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present
• Sugars and/or sweeteners	Images as part of the figure; images as group of the figure; images outside the figure; mentioned in supportive text in figure; mentioned in supportive text in brochure; not present

Table II. Presence (%) of food groups within FBDG (figure or brochure) (n=93)

Food groups	Percentage of FBDG (%)
Cereals	87
Vegetables	51
Fruits	47
Fruits and vegetables	38
Fish	4
Meat	6
Eggs	1
Dairy Products	55
Fish and meat	10
Fish, meat and eggs	43
Fish, meat and dairy products	4
Fish, meat, eggs and dairy products	23
Oils and fats	47
Sugar and syrups	24
Oils, fats, sugars and syrups	29
Beverages	22
Miscellaneous	3

Table III. Presence (%) of food items within FBDG (figure or brochure) (n=93)

Food items	Percentage of FBDG (%)
Alcoholic beverages	54
Non-caloric beverages	89
Oils and fats	99
Salt	89
Sugars and/or sweeteners	88

Table IV. Presence (%) of lifestyle factors within FBDG (figure or brochure) (n=93)

Lifestyle factors	Percentage of FBDG (%)
Healthy bodyweight maintenance	55
Exercise	85

APPENDIX C

General information tables

All analysed 226 FBDG were assigned to a continent based on the location of the country they apply to. The continents defined are; Africa, Asia, Europe, North America, Oceania and South America. The general information of all analysed FBDG is shown in table I to VI. Each table shows one continent. The tables show the country, the name of the FBDG (in English and if possible in the country's official language), who developed the FBDG (source), what year the FBDG was published, how many years it has been since the last update, if the FBDG is available for other population groups (which we do not discuss further) than the general healthy population (e.g. children, pregnant women) and whether the FBDG was catalogued by the FAO. In the case of how many years it has been since the last update, 'N/A' means that either the current version is the first version, or it was impossible to find how long it has been since the last update.

Table I. General information FBDG of Africa

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Benin	Food Guide of Benin (French: Guide alimentaire du Bénin)	National council of Food and Nutrition	2014	N/A	Children, adolescents	No
Ghana	The 3 Food Steps	Ministry of Health	2009	N/A	Children and adolescents, pregnant women, elderly	No
Malawi	The six food groups of Malawi	Ministry of Health	2014	N/A	No	No
Mauritius	Dietary guidelines for the prevention of NCD'S in Mauritius	Ministry of Health and Quality of Life	1999+	N/A	Infants	No
Namibia	Food and nutrition guidelines for Namibia	Ministry of Health and Social Services	2000	N/A	No	Yes
Nigeria	Food-based dietary guidelines for Nigeria - a guide to healthy eating	Ministries of Health, Agriculture and Rural Development and Information; universities, the World Health Organization, Helen Keller International, International Institute of Tropical Agriculture, and paediatric and nutrition societies	2001	N/A	Infants, children, adolescents, pregnant women, elderly	Yes

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
South-Africa	Food-Based Dietary Guidelines for South Africa	National Department of Health, Directorate of Nutrition.	2012	9	Children	Yes

Table II. General information FBDG of Asia

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Arab countries	Food Dome: dietary guidelines for the Arab countries.	Arabic Centre for Nutrition	2012	N/A	Infants, children, adolescents, pregnant women, elderly	No
Bangladesh	Dietary guidelines for Bangladesh	The Bangladesh National Nutrition Council, Ministry of Health and Family Welfare	2013	3	Pregnant women	Yes
China	Dietary guidelines for Chinese residents (中国居民膳食指南)	Chinese nutrition society	2007	10	Infants, children, adolescents, pregnant women, elderly	Yes
India	Dietary guidelines for Indians -a manual	National Institute of Nutrition	2014	4	Infants, children, adolescents, pregnant women, elderly	Yes
Iran	Food-based dietary guidelines for Iran (Persian: <i>ایران رهنمودهای غذایی</i>)	The Office of Community Nutrition in the Ministry of Health and Medical Education, the Iranian Nutrition Society and the National Nutrition and Food Technology Research Institute	2006	10	No	Yes
Japan	Japan Food Guide Spinning Top	the Japan Dietetic Association	2005	N/A	No	No
Lebanon	The Lebanese Cedar Food Guide	Faculty of Agricultural and Food Sciences, American University of Beirut	2013	N/A	No	No
Malaysia	Malaysian Dietary Guidelines	Ministry of Health Malaysia	2010	11	No	Yes

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Mongolia	Dietary guidelines for Mongolians	Ministry of Health	2010	5	No	Yes
Nepal	Food-based dietary guidelines for Nepalese	Ministry of Health and Population	2012	8	No	Yes
Oman	The Omani guide to healthy eating (Arabic: الدليل العماني للغذاء الصحي)	Department of Nutrition, Ministry of Health Oman	2009	N/A	No	Yes
Philippines	2012 nutritional guidelines for Filipinos -Eating Plan for Healthy Living (Filipino: Mga Gabay sa Wastong Nutrisyon Para sa Pilipino)	Food and Nutrition Research Institute	2012	12	Infants, children, adolescents, pregnant women, breastfeeding women, elderly	Yes
Saudi Arabia	The Healthy Food Palm for Kingdom of Saudi Arabia	General Directorate of Nutrition	2012	N/A	No	No
Singapore	Build a Healthy Food Foundation	Health Promotion Board	2014	11	No	No
South Korea	Dietary guidelines for Koreans - Korea Food Bike (Korean: 한국인을 위한 식생활 지침)	Korean Nutrition Society	2010	7	Infants, children, adolescents, pregnant women, elderly	No
Sri Lanka	Food-based dietary guidelines for Sri Lankans	Nutrition Division of the Ministry of Health	2011	9	Children, adolescents, elderly	Yes
Thailand	Food-based dietary guidelines for Thai also called 'the nutrition flag'	Ministry of Health	1998	12	Infants, children	Yes
Viet Nam	10 tips on proper nutrition for period 2013–2020 (Vietnamese: 10 Lời khuyên dinh dưỡng hợp lý đến năm 2020)	National Institute of Nutrition	2013	7	Children	Yes

Table III. General information FBDG of Europe

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
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Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Albania	Recommendations on healthy nutrition in Albania (Albanian: Rekomandime për një ushqyerje të shëndetshme në Shqipëri)	Ministry of Health	2008	N/A	No	Yes
Austria	The Austrian food pyramid – 7 steps to health (German: Die österreichische Ernährungspyramide – 7 Stufen zur Gesundheit)	Ministry of Health	2010	N/A	Children, pregnant women	Yes
Belgium	Practical guidelines for healthy eating (Dutch: Gezonde voeding: de praktische gidsen; French: Les guides pratiques du Plan National Nutrition Santé)	Federal public service of public health	2005	N/A	Children, adolescents, elderly	Yes
Bosnia and Herzegovina	Guide on nutrition for the adult population (Bosnian: Vodič o ishrani za odraslu populaciju)	Institute of public health	2004	N/A	No	Yes
Bulgaria	Food based dietary guidelines for adults in Bulgaria	Ministry of Health	2006	N/A	No	No
Croatia	Dietary guidelines (Croatian: Prehrambene smjernice)	Ministry of Health	2002	N/A	Children, children and adolescents	Yes
Cyprus	National nutrition and exercise guidelines (Greek: εθνικές οδηγίες διατροφής και άσκησης)	Ministry of Health	2007	N/A	Children	Yes
Denmark	The official dietary guidelines (Danish: De officielle kostråd)	Ministry of food, agriculture and fisheries	2013	N/A	No	Yes
Estonia	Estonian food and nutrition recommendations (Estonian: Eesti toitumis-ja toidusoovitused)	National Institute of Health Development	2006	N/A	Children, adolescents, pregnant women, elderly	Yes
Finland	Finnish nutrition recommendations 2014 (Finnish: Terveystä ruoasta. Suomalaiset ravitsemussuositukset 2014)	Nutritional Centre	2014	N/A	No	Yes
France	Eat well, move, protect your health (French: Bien manger, bouger, protéger votre sante)	Ministry of Social affairs, Health and Women's Rights	2011	N/A	Children, elderly	No

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Georgia	Healthy eating – the main key to health (Georgian: jansaRi kveba – janmrTelobis mTavari gasaRebi)	National Centre for Disease Control and Public Health	2005	N/A	No	Yes
Germany	Ten guidelines for wholesome eating and beverageing from the German Nutrition Society (German: Vollwertig essen und trinken nach den 10 Regeln der DGE)	Nutritional Centre	2013	N/A	No	Yes
Greece	Dietary guidelines for adults in Greece	WHO Collaborating Centre for Food and Nutrition Policies and Ministry of Health	1999	N/A	No	Yes
Greenland	The 10 dietary guidelines (Danish: De 10 kostråd)	Nutrition council	2005	N/A	Children and adolescents, pregnant women, diabetics	No
Hungary	Dietary guidelines for the adult population in Hungary (Hungarian: Táplálkozási ajánlások a magyarországi)	Ministries of Health, Agriculture and Education	2004	17	No	Yes
Iceland	Dietary and nutrient guidelines (Icelandic: Ráðleggingar um mataræði og næringarefni)	The Directorate of Health	2006	N/A	No	Yes
Ireland	Your guide to Healthy Eating Using the Food Pyramid	Ministry of Health	2015	3	No	No
Israel	The Israeli food pyramid (Hebrew: המזון פירמידת הישראלי)	Ministry of Health	2008	10	No	Yes
Italy	Guidelines for healthy Italian food habits, 2003 (Italian: Linee guida per una sana alimentazione italiana, Revisione 2003)	Italian National Research Institute on Food and Nutrition	2003	N/A	No	Yes
Latvia	Dietary guidelines for adults (Latvian: Veselīga uztura ieteikumi pieaugušajiem)	Ministry of Health	2008	N/A	Children, adolescents, elderly	Yes
Lithuania	Food choice pyramid	Ministry of Health	2011	N/A	No	No

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Macedonia	Dietary guidelines for the population in The former Yugoslav Republic of Macedonia (Macedonian: Водич за исхрана на населението во Република Македонија)	Institute of public health	2014	6	No	Yes
Malta	8 steps towards a healthy lifestyle	The Health Promotion and Disease Prevention Directorate, Ministry of Health	2011	N/A	No	Yes
Netherlands	Guidelines Wheel of Five (Dutch: Richtlijnen Schijf van Vijf)	The Netherlands Nutrition Centre	2016	5	No	Yes
Norway	Dietary Guidelines (Norwegian: Nøkkelråd for et sunt kosthold)	Directorate of Health	2012	N/A	No	No
Poland	Principles of healthy eating (Polish: Zasady zdrowego żywienia)	National Food and Nutrition Institute in collaboration with the Ministry of Health	2010	N/A	Children, adolescents	Yes
Portugal	The new food wheel (Portugese: A nova Roda Dos Alimentos)	Ministry of Health	2015	10	No	No
Romania	Guidelines for a healthy diet (Romanian: Reguli pentru o alimentație sănătoasă)	Ministry of Health	2006	N/A	No	Yes
Spain	Eat healthy and move: 12 healthy decisions (Spanish: Come sano y muévete: 12 decisiones saludables)	Ministry of Health	2008	N/A	Children and adolescents	Yes
Sweden	Find your way to eat greener, not too much and to be active!	National Food Agency	2015	6	No	Yes
Switzerland	The Swiss food pyramid (German: Lebensmittelpyramide)	Swiss Society for Nutrition	2011	N/A	Children	Yes
Turkey	Dietary guidelines for Turkey (Turkish: Türkiye'ye Özgü Beslenme Rehberi)	Ministry of Health	2006	1	No	Yes
United Kingdom	The Eat well guide	Food standard agency	2016	9	No	Yes

Table IV. General information FBDG of North America

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Belize	Food-based dietary guidelines for Belize	Ministry of Health, Agriculture and Education & Variety of institutions represented in the multi-sectorial group	2012	N/A	No	Yes
Bermuda	EatWell Bermuda	Ministry of Health and Environment & Public Health Nutritionists	2012	N/A	No	No
Canada	Canada's Food Guide	Minister of Health Canada	2011	4	Children, pregnant women, elderly	Yes
Costa Rica	Dietary guidelines for Costa Rica (Spanish: Guías alimentarias para Costa Rica)	Ministry of Health & An Intersectoral Commission on Dietary Guidelines	2010	13	No	Yes
El Salvador	Dietary guidelines for Salvadorian families (Spanish: Guías alimentarias para las familias salvadoreñas)	Ministry of Health & National Dietary Guidelines Committee	2012	11	No	Yes
Guatemala	Dietary guidelines for Guatemala. Recommendations for healthy eating (Spanish: Guías alimentarias para Guatemala. Recomendaciones para una alimentación saludable)	The Ministry of Public Health and Social Assistance & National Dietary Guidelines Committee	2012	16	Infants	Yes
Honduras	Dietary guidelines for Honduras. Tips for healthy eating (Spanish: Guías alimentarias de Honduras. Consejos para una alimentación sana)	The National Dietary Guidelines Committee & National Food Security Programme of the Ministry of Health	2013	2	No	Yes
Mexico	The plate of good eating. (Spanish: El plato del bien comer)	Ministry of public health, department of Medicine & Panel of Nutritional Experts	2005	6	No	No
Panama	Dietary guidelines for Panama (Spanish: Guías alimentarias para Panamá)	Dietary Guidelines National Committee, The Institute of Nutrition of Central America and Panama & the Pan American Health Organization	2013	16	Infants	Yes
United States of America	Myplate (Dietary guidelines for Americans)	The U.S. Department of Agriculture and the U.S. Department of Health and Human & dietary guidelines advisory committee	2011	5	No	Yes

Table V. General information FBDG of Oceania

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other population groups	FAO reference
Australia	Australian guide to healthy eating	National Health and Medical Research Council	2013	10	No	Yes
Fiji	3 Food Groups, Food and Health guidelines for Fiji	National Food and Nutrition Centre	2013	2	No	Yes
Indonesia	The Indonesian Dietary Guidelines	Ministry of Health	1995	N/A	No	No
New Zealand	NZ Food and Nutrition Guideline statements for healthy adults	Ministry of Health	2013	N/A	Infants, children and adolescents, pregnant women, elderly	Yes

Table VI. General information FBDG of South America

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other groups	FAO reference
Antigua and Barbuda	Food-based dietary guidelines for Antigua and Barbuda	Developed by the Ministries of Health, Education and Agriculture in collaboration with FAO.	2013	N/A	No	Yes
Argentina	The nutritional oval (Spanish: Óvalo nutricional)	Asociación Argentina de Dietistas y Nutricionistas Dietistas - AADYND + Colegio de Nutricinistas de la Provincia de Córdoba. Published by: Ministerio de Agricultura, Ganadería y Pesca. Presidencia de la Nación.	2014	7	Infants	No

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other groups	FAO reference
The Bahamas	The new dietary guidelines for the Bahamas	Developed in a process led by the Ministry of Health in coordination with the Ministries of Education and Agriculture, the Department of Statistics, universities, non-governmental organization, the FAO, the Institute of Nutrition of Central America and Panama and the Caribbean Food and Nutrition Institute.	2002	N/A	No	Yes
Barbados	Food-based dietary guidelines for Barbados	Developed by the National Nutrition centre (part of the Ministry of Health) with support from the FAO. They have been endorsed by the Cabinet and the Ministry of Health of Barbados.	2009	N/A	No	Yes
Brazil	Dietary Guidelines for the Brazilian Population 2014 (Portuguese: Guia alimentar para a população brasileira 2014)	Ministry of Health and the Center for Epidemiological Research in Nutrition and Health of the University of Sao Paulo (NUPENS/USP), with the support of the Brazilian Pan American Health Organization Office	2014	8	Infants	Yes
Chile	Dietary guidelines for the Chilean population, Ministry of Health 2013 (Spanish: Guías alimentarias para la población chilena, Ministerio de Salud 2013)	The Institute of Nutrition and Food Technology (INTA) of the University of Chile and in collaboration with the FAO. The guidelines were endorsed by the Ministry of Health.	2013	8	Infants, children and adolescents, elderly	Yes
Colombia	Dietary Guidelines for Colombians (Spanish: Guías alimentarias para la población colombiana)	Instituto Colombiano del Bienestar Familiar, Ministerio de la Protección Social, República de Colombia	2005	N/A	No	No

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other groups	FAO reference
Cuba	Dietary guidelines for the Cuban population over two years of age (Spanish: Guías alimentarias para la población cubana mayor de dos años)	The Cuban national commission for the development and implementation of dietary guidelines, coordinated by the Institute of Nutrition and Food Hygiene of Cuba, is responsible for the preparation of FBDG in the country. The guidelines are endorsed officially by Ministry of Health.	2009	7	Infants	Yes
Dominica	Dominica food-based dietary guidelines	Ministry of Health, in collaboration with the ministries of Education and Agriculture, the Food and Nutrition Council, the National Youth Council, the FAO, the Institute of Nutrition of Central America and Panama and the Caribbean Food and Nutrition Institute. Endorsed by Ministry of Health.	2007	N/A	No	Yes
Dominican Republic	The mortar of food and nutrition (Spanish: Pílon de la alimentación y nutrición)	Developed in a process led by the Office of the First Lady and the Ministry of Public Health, in collaboration with other ministries, universities, consumer groups, the FAO, the Institute of Nutrition of Central America and Panama and the Pan American Health Organization. The guidelines are endorsed by the Ministry of Public Health, the Ministry of Education and the Ministry of Agriculture.	2009	N/A	No	Yes
Grenada	Food-based dietary guidelines for Grenada	Process led by the Grenada Food and Nutrition Institute, in collaboration with the FAO, the Institute of Nutrition of Central America and Panama and the Caribbean Food and Nutrition Institute. Endorsed by the Cabinet of Grenada.	2006	N/A	No	Yes

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other groups	FAO reference
Guyana	Food-based dietary guidelines for Guyana	The food-Based Dietary Guidelines National Committee, under the leadership of the Food Policy Division from the Ministry of Health, with the participation of the Minsitries of Education, Agriculture and Finance, the Guyana Association of Home economists, universities and consumer organisations. The process was supported by the Carribbean Food and Nutrition Institute and the Pan American Health organization. Guidelines are endorsed by the Ministry of Health.	2004	N/A	No	Yes
Jamaica	The food based dietary guidelines for Jamaica	The Ministry of Health	2015	N/A	No	No
Paraguay	Dietary Guidelines of Paraguay (Spanish: Guías alimentarias del Paraguay)	Ministerio de Slud Pública y Bienestar Social (MSPBS): INAN (Instituto nacional de Alimentación Nutrición)	2013	14	No	No
Puerto Rico	My dish for a Healthy Puerto Rico (Spanish: Mi plato para un Puerto Rico Saludable)	Comisión de alimentación y nutrición de puerto rico, departamento de salud, medical card system corporation.	2011	6	Children	No
Saint Kitts and Nevis	Food-based dietary guidelines for St. Kitts and Nevis	Developed by a national interdisciplinary group comprised of representatives from the Ministries of Health, Education, Agriculture, Commerce and Consumer Affairs, and the Chambers of Industry and Commerce. Guidelines endorsed by Ministry of Health.	2010	N/A	No	Yes

Country	Name of FBDG	Source (developed by)	Year published	Years since last update	FBDG available for other groups	FAO reference
Saint Lucia	Dietary guidelines for Saint Lucia	The Guidelines were developed by the Ministry of Health, Human Services and Family Affairs, with the technical assistance of the FAO, the Institute of Nutrition of Central America and Panama and the Pan American Health Organization.	2007	N/A	No	Yes
Saint Vincent and the Grenadines	Dietary guidelines for St. Vincent and the Grenadines	Dietary guidelines development was led by the Ministry of Health and Environment, in collaboration with the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Education, the Bureau of Standards, the Bureau of Consumer Affairs and the Chamber of Commerce, as well as the Caribbean Food and Nutrition Institute, the FAO, the Institute of Nutrition of Central America and Panama and the Pan American Health Organization. The guidelines are endorsed by the country's Cabinet.	2006	N/A	No	Yes
Uruguay	Food Based Dietary Guidelines for Uruguay (Spanish: Guías Alimentarias Basadas en Alimentos del Uruguay)	Ministerio de Salud pública; program nacional de nutrición	2005	N/A	Infants, children and adolescents, labourers, anaemics	No
Venezuela	Dietary guidelines for Venezuela (Spanish: Guías de alimentación para Venezuela)	National Nutrition Institute and the Cavendes Foundation, in collaboration with the Central University of Venezuela and the Simon Bolivar University of Venezuela. Guidelines are endorsed by Ministry of Health, the Ministry of Education and the National Institute of Nutrition.	2007	16	Indigenous people	Yes

Graphic design aspects tables

Graphic design aspects of all analysed FBDG were determined, based on several categories. These data are shown in table VII to XII, with one table per continent. The graphic factors discussed were;

- How many groups were present in the FBDG: Number of groups
- Whether the shape was hierarchical: Hierarchy of figure
- What kind of shape the FBDG used: Shape
- Whether the background of the group boxes used different colours and whether this was significant: Colour
- How the foods were represented, by drawings, photographs or text in figure: Representation of foods
- Whether there was text present in the FBDG and if the text was supportive or descriptive: Text in figure
- If and how quantities were shown in the figure and/or brochure: Indication of quantities

If a FBDG consisted of text only, it had no graphic design aspects to speak of and so it was denoted as 'N/A - FBDG is text only'. For the colours, we differentiated between all boxes/groups consisted of one colour, or consisted of different colours. If the groups had different colours, we investigated whether the colours had significance or not. When we were speaking of 'significant' colours, this referred to for example the 'traffic light' system which showed more clearly which food to eat and which foods to avoid. If the 'Colours'-column states 'N/A', usually the food groups did not have a box background colour.

When the 'Text in figure'-column states 'N/A' this meant there was text present in the figure, but it was stated in an unknown language by us and therefore we were not able to define whether the text was supportive or descriptive. More than one answer is possible by scoring the FBDG according to the factor: indication of quantities.

Table VII. Graphic design aspects of FBDG of Africa

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Bénin	6	Yes	Traditional home	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Absolute amounts present in brochure
Ghana	3	Yes	Three text boxes stacked as 'steps'	All boxes in one colour	Only text in figure	Both, supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Malawi	6	No	Only text	N/A	Both photographs and drawings	Both supportive and descriptive text in figure	Not present
Mauritius	N/A - FBDG is text only						

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Namibia	4	No	Square	All boxes in one colour	Drawings	Only supportive text figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Nigeria	5	Yes	Pyramid	All boxes in one colour	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake
South-Africa	7	No	Circles connected with lines	All boxes in one colour	Drawings	No text used in figure	Surface proportional to daily recommended intake

Table VIII. Graphic design aspects of FBDG of Asia

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Arab countries	6	No	National symbol	Different colours between boxes: no significance	Photographs	Both supportive and descriptive text in figure	Absolute amounts present in figure
Bangladesh	6	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	Both supportive and descriptive text in figure	Absolute amounts present in figure
China	5	Yes	National symbol	Different colours between boxes: no significance	Drawings	Only descriptive text in figure	Absolute amounts present in figure
India	5	Yes	Pyramid	Different colours between boxes: no significance	Photographs	Only supportive text figure	Surface proportional to daily recommended intake
Iran	6	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	N/A	Surface proportional to daily recommended intake
Japan	5	Yes	Pyramid	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Absolute amounts present in figure
Lebanon	6	Yes	National symbol	All boxes in one colour (white or other)	Photographs	Both, supportive and descriptive text in figure	Absolute amounts present in figure

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Malaysia	4	Yes	Pyramid	Different colours between boxes: significance	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute and relative amounts present in figure, relative amounts present in brochure
Mongolia	5	Yes	National symbol	Different colours between boxes: no significance	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Nepal	N/A - FBDG is text only						
Oman	6	No	Plate	Different colours between boxes: no significance	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Philippines	6	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute and relative amounts present in brochure
Saudi Arabia	7	No	National symbol	Different colours between boxes: no significance	Photographs	Both supportive and descriptive text in figure	Absolute amounts present in figure
Singapore	3	No	Plate	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake
South Korea	7	No	Bicycle	Different colours between boxes: no significance	Drawings	Only descriptive text in figure	Surface proportional to daily recommended intake
Sri Lanka	7	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake
Thailand	6	Yes	Pyramid	Different colours between boxes: no significance	Photographs	Only descriptive text in figure	Absolute amounts present in figure
Viet Nam	7	Yes	Pyramid	All boxes in one colour (white or other)	Both	Only descriptive text in figure	Surface proportional to daily recommended intake

Table IX. Graphic design aspects of FBDG of Europe

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Albania	6	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	No text used in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Austria	7	Yes	Pyramid	All boxes in one colour (white or other)	Drawings	No text used in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Belgium	9	Yes	Pyramid	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Bosnia and Herzegovina	5	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	No text used in figure	Absolute amounts present in brochure
Bulgaria	6	Yes	Pyramid	Different colours between boxes: significance	Drawings	Only descriptive text in figure	Surface proportional to daily recommended intake
Croatia	6	Yes	Pyramid	Different colours between boxes: significance	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Cyprus	9	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake
Denmark	3	No	Plate	All boxes in one colour (white or other)	Drawings	Only descriptive text in figure	Absolute amounts present in brochure
Estonia	10	Yes	Pyramid	All boxes in one colour (white or other)	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Finland	9	Yes	Pyramid	All boxes in one colour (white or other)	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
France	6	Yes	Stairs	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Relative amounts present in brochure

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Georgia	N/A - FBDG is text only						
Germany	7	No	Circle	Different colours between boxes: no significance	Photographs	No text used in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Greece	12	Yes	Pyramid	Different colours between boxes: no significance	Only text in figure	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Greenland	N/A	No	N/A	N/A	N/A	N/A	Relative amounts present in brochure
Hungary	5	Yes	House	Different colours between boxes: no significance	Only text in figure	No text used in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Iceland	6	No	Circle	All boxes in one colour (white or other)	Both photographs and drawings	Only descriptive text in figure	Relative amounts present in brochure
Ireland	6	Yes	Pyramid	Different colours between boxes: significance	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Israel	6	Yes	Pyramid	Different colours between boxes: significance	Drawings	Only supportive text figure	Surface proportional to daily recommended intake
Italy	N/A - FBDG is text only						
Latvia	6	Yes	Pyramid	Different colours between boxes: significance	Both photographs and drawings	Only supportive text figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Lithuania	6	Yes	Pyramid	Different colours between boxes: significance	Drawings	No text used in figure	Surface proportional to daily recommended intake
Macedonia	N/A - FBDG is text only						
Malta	5	Yes	Pyramid	Different colours between boxes: significance	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Netherlands	5	No	Circle	Different colours between boxes: no significance	Drawings	Only supportive text figure	Surface proportional to daily recommended intake, absolute amounts present in brochure

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Norway	7	No	Circle	All boxes in one colour (white or other)	Photographs	No text used in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Poland	6	Yes	Pyramid	Different colours between boxes: no significance	Both photographs and drawings	Only supportive text figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Portugal	7	No	Circle	N/A	Photographs	Only supportive text figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Romania	8	Yes	Pyramid	Different colours between boxes: no significance	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Spain	3	Yes	Pyramid	Different colours between boxes: significance	Drawings	Only supportive text figure	Absolute amounts present in figure
Sweden	N/A	No	N/A	N/A	Photographs	Both supportive and descriptive text in figure	Absolute amounts present in brochure
Switzerland	6	Yes	Pyramid	Different colours between boxes: no significance	Drawings	No text used in figure	Surface proportional to daily recommended intake
Turkey	4	No	Four-leaf clover	Different colours between boxes: no significance	Photographs	Only descriptive text in figure	Absolute amounts present in brochure
United Kingdom	5	No	Plate	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure

Table X. Graphic design aspects of FBDG of North America

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Belize	7	No	Woven basket	N/A	Drawings	Both supportive and descriptive text in figure	Absolute amounts present in brochure

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Bermuda	4	No	Circle	Different colours between boxes: no significance	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
Canada	4	No	Half rainbow	Different colours between boxes: no significance	Drawings	No text used in figure	Absolute amounts present in brochure
Costa Rica	4	No	Circle	Different colours between boxes: no significance	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
El Salvador	N/A - FBDG is text only	No	Pot	N/A	Photographs	Only supportive text figure	Absolute amounts present in brochure
Guatemala		Yes	Pot	N/A	Photographs	Only descriptive text in figure	Relative amounts present in figure
Honduras	5	Yes	Pot	All boxes in one colour (white or other)	Photographs	Only descriptive text in figure	Relative amounts present in figure
Mexico	3	No	Circle	Different colours between boxes: no significance	Drawings	Only descriptive text in figure	Absolute amounts present in brochure
Panama	5	No	Plate	Different colours between boxes: no significance	Photographs	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in figure
United States of America	5	No	Plate	Different colours between boxes: no significance	Only text in figure	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure

Table XI. Graphic design aspects of FBDG of Oceania

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Australia	5	No	Plate	Different colours between boxes: no significance	Photographs	Both, supportive and descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in figure and brochure

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Fiji	3	Yes	Half rainbow	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Indonesia	N/A - FBDG is text only						
New Zealand	N/A - FBDG is text only						

Table XII. Graphic design aspects of FBDG of South America

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Antigua and Barbuda	7	No	Fruit	N/A	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Argentina	6	No	Circle	All boxes in one colour (white or other)	Drawings	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
The Bahamas	7	No	Goat-skin drum	All boxes in one colour (white or other)	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Barbados	6	Yes	Map	N/A	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Brazil	N/A - FBDG is text only						
Chile	N/A - FBDG is text only						
Colombia	7	Yes	Train	Different colours between boxes: no significance	Drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Cuba	7	Yes	Plate	All boxes in one colour (white or other)	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Dominica	7	No	National symbol	N/A	Drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure

Country	Number of groups	Hierarchy of figure	Shape	Colour	Representation of foods	Text in figure	Indication of quantities
Dominican Republic	7	Yes	National symbol	All boxes in one colour (white or other)	Photographs	No text used in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Grenada	7	No	Fruit	Different colours between boxes: no significance	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Guyana	6	No	Pot	All boxes in one colour (white or other)	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Jamaica	6	No	Plate	All boxes in one colour (white or other)	Drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Paraguay	7	Yes	Pot	Different colours between boxes: significance	Photographs	Only descriptive text in figure	Surface proportional to daily recommended intake
Puerto Rico	5	No	Plate	Different colours between boxes: no significance	Drawings	Both supportive and descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Saint Kitts and Nevis	7	Yes	National symbol	N/A	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Saint Lucia	7	Yes	National symbol	N/A	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Saint Vincent and the Grenadines	7	No	Fruit	N/A	Both photographs and drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure
Uruguay	6	No	Plate	All boxes in one colour (white or other)	Drawings	Only descriptive text in figure	Surface proportional to daily recommended intake, relative amounts present in brochure
Venezuela	5	Yes	Spinning tool	Different colours between boxes: no significance	Drawings	No text used in figure	Surface proportional to daily recommended intake, absolute amounts present in brochure

Lifestyle factor tables

The lifestyle factors presented in the FBDG were analysed. The data of these factors is shown in table XIII to XVIII, where every table discusses a different continent. The lifestyle factors discussed were: “healthy bodyweight maintenance” and “exercise”. A lifestyle factor can be present or not, only present in the brochure, or present in the figure. If a lifestyle visual representation was present in the figure, we analysed whether it was present as text, as a group of the figure, as part of the figure or present as pictures completely separated from the main figure.

Table XIII. Lifestyle factors of FBDG of Africa

Country	Healthy bodyweight maintenance	Exercise
Benin	Present in brochure	Images outside the figure
Ghana	Present in brochure	Present in brochure
Malawi	Not present	Not present
Mauritius	Present in brochure	Present in brochure
Namibia	Mentioned in supportive text in figure	Not present
Nigeria	Not present	Not present
South-Africa	Not present	Present in brochure

Table XIV. Lifestyle factors of FBDG of Asia

Country	Healthy bodyweight maintenance	Exercise
Arab countries	Not present	Images as group of the figure
Bangladesh	Present in brochure	Present in brochure
China	Present in brochure	Images as part of the figure
India	Present in brochure	Present in figure
Iran	Present in brochure	Present in brochure
Japan	Present in brochure	Images as group of the figure
Lebanon	Present in brochure	Images outside the figure
Malaysia	Present in brochure	Present in brochure
Mongolia	Present in brochure	Present in brochure
Nepal	Not present	Present in brochure
Oman	Not present	Present in brochure
Philippines	Present in brochure	Images as group of the figure
Saudi Arabia	Present in brochure	Images as part of the figure
Singapore	Not present	Images outside the figure
South Korea	Not present	Images as part of the figure
Sri Lanka	Present in brochure	Present in brochure
Thailand	Present in brochure	Not present
Viet Nam	Present in brochure	Present in brochure

Table XV. Lifestyle factors of FBDG of Europe

Country	Healthy bodyweight maintenance	Exercise
Albania	Present in brochure	Not present
Austria	Not present	Present in brochure
Belgium	Present in brochure	Images as group of the figure
Bosnia and Herzegovina	Present in brochure	Present in brochure
Bulgaria	Present in brochure	Images outside the figure
Croatia	Present in brochure	Present in brochure
Cyprus	Not present	Images outside the figure
Denmark	Not present	Present in brochure
Estonia	Not present	Present in brochure
Finland	Not present	Present in brochure

Country	Healthy bodyweight maintenance	Exercise
France	Not present	Images as group of the figure
Georgia	Present in brochure	Present in brochure
Germany	Present in brochure	Present in brochure
Greece	Not present	Images outside the figure
Greenland	Not present	Mentioned in supportive text in figure
Hungary	Present in brochure	Present in brochure
Iceland	Present in brochure	Images as part of the figure
Ireland	Present in brochure	Present in brochure
Israel	Present in brochure	Images outside the figure
Italy	Present in brochure	Present in brochure
Latvia	Present in brochure	Images as group of the figure
Lithuania	Present in brochure	Images outside the figure
Macedonia	Present in brochure	Present in brochure
Malta	Not present	Present in brochure
Netherlands	Not present	Not present
Norway	Present in brochure	Not present
Poland	Present in brochure	Images outside the figure
Portugal	Present in brochure	Present in brochure
Romania	Present in brochure	Images as group of the figure
Spain	Present in brochure	Images as group of the figure
Sweden	Not present	Not present
Switzerland	Not present	Not present
Turkey	Present in brochure	Not present
United Kingdom	Not present	Present in brochure

Table XVI. Lifestyle factors of FBDG of North America

Country	Healthy bodyweight maintenance	Exercise
Belize	Not present	Images as part of the figure
Bermuda	Not present	Images as part of the figure
Canada	Not present	Present in brochure
Costa Rica	Present in brochure	Images outside the figure
El Salvador	Present in brochure	Present in brochure
Guatemala	Not present	Images as part of the figure
Honduras	Not present	Images outside the figure
Mexico	Present in brochure	Present in brochure
Panama	Present in brochure	Present in brochure
United States of America	Present in brochure	Present in brochure

Table XVII. Lifestyle factors of FBDG of Oceania

Country	Healthy bodyweight maintenance	Exercise
Australia	Present in brochure	Present in brochure
Fiji	Not present	Not present
Indonesia	Not present	Present in brochure
New Zealand	Present in brochure	Present in brochure

Table XVIII. Lifestyle factors of FBDG of South America

Country	Healthy bodyweight maintenance	Exercise
Antigua and Barbuda	Not present	Images outside the figure
Argentina	Not present	Not present
The Bahamas	Not present	Images as part of the figure

Country	Healthy bodyweight maintenance	Exercise
Barbados	Not present	Images as part of the figure
Brazil	Not present	Not present
Chile	Present in brochure	Present in brochure
Colombia	Present in brochure	Present in brochure
Cuba	Present in brochure	Not present
Dominica	Not present	Images as part of the figure
Dominican Republic	Present in brochure	Images outside the figure
Grenada	Not present	Images outside the figure
Guyana	Not present	Images as part of the figure
Jamaica	Not present	Images outside the figure
Paraguay	Not present	Images outside the figure
Puerto Rico	Not present	Images outside the figure
Saint Kitts and Nevis	Not present	Images outside the figure
Saint Lucia	Not present	Images outside the figure
Saint Vincent and the Grenadines	Not present	Images as part of the figure
Uruguay	Present in brochure	Not present
Venezuela	Present in brochure	Images as part of the figure

Food group tables

For every FBDG, we determined which food groups were present and in which order (see table XIX to XXIV). To analyse consistently, food groups were defined according to the 19 food groups used by the FAO.

- Cereals
- Vegetables
- Fruits
- Fruits and vegetables
- Cereals, fruits and vegetables
- Nuts and seeds
- Fish
- Meat
- Eggs
- Dairy products
- Fish and meat
- Fish, meat and eggs
- Fish, meat and dairy products
- Fish, meat, eggs and dairy products
- Oils and fats
- Sugars and syrups
- Oils, fats, sugars and syrups
- Beverages
- Miscellaneous

Two additional options in categorising the presented groups of the FBDG were the non-food group exercise or not applicable (FBDG is text only). The food groups were numbered based on their size in the FBDG, from largest to smallest group. When food groups of one FBDG had the same number, this meant that they were separate groups which were the same in (recommended) size. If a food group was mentioned twice, this is due to the fact this particular food group in the FBDG had been divided into two. For example, meat was sometimes divided into 'Normal meat' and 'Red meat' and vegetables were sometimes divided into 'vegetables' and 'legumes'. Miscellaneous groups were groups that could not be placed in any of the FAO defined groups, so were added to the FAO groups.

Table XIX. Food groups in FBDG of Africa

Country	Food groups	Country	Food groups
Benin	1. Cereals 2. Fish and meat 3. Vegetables 4. Fruits 5. Dairy products 6. Beverages	Namibia	1. Cereals 2. Fruits and vegetables 3. Fish, meat, eggs and dairy products 4. Oils and fats/Sugars and syrups
Ghana	1. Cereals, fruits and vegetables 2. Fish, meat, eggs and dairy products 3. Oils, fats, sugars and syrups	Nigeria	1. Cereals 2. Fruits and vegetables 3. Fish, meat and dairy products 4. Oils and fats 5. Sugars and syrups
Malawi	1. Vegetables 2. Fruits 3. Nuts and seeds 4. Fish, meat and dairy products 5. Cereals 6. Oils and fats	South-Africa	1. Cereals 2. Fruits and vegetables 3. Beverages 4. Vegetables 5. Fish, meat and eggs 6. Dairy products 7. Oils and fats
Mauritius	N/A - FBDG is text only		

Table XX. Food groups in FBDG of Asia

Country	Food groups	Country	Food groups
Arab countries	1. Exercise 2. Cereals 3. Vegetables 3. Fruits 4. Fish, meat and eggs 4. Dairy products	Nepal	N/A - FBDG is text only
Bangladesh	1. Cereals 2. Fruits and vegetables 3. Fish, meat and eggs 4. Dairy products 5. Oils and fats 6. Sugars and syrups	Oman	1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat and eggs 5. Vegetables 5. Dairy products
China	1. Cereals 2. Fruits and vegetables 3. Fish, meat and eggs 4. Dairy products 5. Oils and fats	Philippines	1. Beverages 2. Cereals 3. Vegetables 3. Fruits 4. Fish, meat, eggs and dairy products 5. Oils, fats, sugars and syrups
India	1. Cereals 2. Fruits and vegetables 3. Fish and meat 3. Oils and fats 4. Oils, fats, sugars and syrups	Saudi Arabia	1. Beverages 2. Cereals 3. Vegetables 4. Fruits 5. Dairy products 6. Fish and meat 7. Oils, fats, sugars and syrups

Country	Food groups	Country	Food groups
Iran	1. Cereals 2. Vegetables 3. Fruits 4. Dairy products 5. Fish, meat and eggs 6. Oils, fats, sugars and syrups	Singapore	1. Fruits and vegetables 2. Cereals 2. Fish and meat
Japan	1. Cereals 2. Vegetables 3. Fish, meat and eggs 4. Dairy products 4. Fruits	South Korea	1. Cereals 2. Vegetables 3. Fish, meat and eggs 4. Dairy products 5. Fruits 6. Oils and fats
Lebanon	1. Beverages 2. Cereals 3. Fruits and vegetables 4. Fish, meat and eggs 5. Dairy products 6. Oils, fats, sugars and syrups	Sri Lanka	1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat and eggs 5. Dairy products 6. Nuts and seeds 7. Oils, fats, sugars and syrups
Malaysia	1. Cereals 2. Fruits and vegetables 3. Fish, meat and dairy products 4. Oils, fats, sugars and syrups	Thailand	1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat and eggs 5. Dairy products 6. Oils, fats, sugars and syrups
Mongolia	1. Cereals 2. Vegetables 2. Fish, meat and eggs 3. Fruits 3. Dairy products	Viet Nam	1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat, eggs and dairy products 5. Oils and fats 6. Sugars and syrups 7. Miscellaneous

Table XXI. Food groups in FBDG of Europe

Country	Food groups	Country	Food groups
Albania	1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat and eggs 5. Dairy products 6. Oils, fats, sugars and syrups	Ireland	1. Cereals 2. Fruits and vegetables 3. Dairy products 4. Fish, meat and eggs 5. Oils and fats 6. Oils, fats, sugars and syrups

Country	Food groups	Country	Food groups
Austria	<ol style="list-style-type: none"> 1. Beverages 2. Fruits and vegetables 3. Cereals 4. Dairy products 5. Fish, meat and eggs 6. Oils and fats 7. Sugars and syrups 	Israel	<ol style="list-style-type: none"> 1. Beverages 2. Cereals 3. Fruits and vegetables 4. Fish, meat, eggs and dairy products 5. Oils and fats 6. Sugars and syrups
Belgium	<ol style="list-style-type: none"> 1. Exercise 2. Beverages 3. Cereals 4. Vegetables 5. Fruits 6. Dairy products 7. Fish, meat and eggs 8. Oils and fats 9. Miscellaneous 	Italy	N/A - FBDG is text only
Bosnia and Herzegovina	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Fish, meat and eggs 4. Dairy products 5. Oils, fats, sugars and syrups 	Latvia	<ol style="list-style-type: none"> 1. Beverages 2. Cereals 3. Fruits and vegetables 4. Dairy products 5. Fish, meat and eggs 6. Oils, fats, sugars and syrups
Bulgaria	<ol style="list-style-type: none"> 1. Fruits and vegetables 2. Cereals 3. Dairy products 4. Fish, meat and eggs 5. Oils and fats 6. Oils, fats, sugars and syrups 	Lithuania	<ol style="list-style-type: none"> 1. Cereals 1. Fruits and vegetables 2. Dairy products 2. Fish, meat and eggs 3. Oils and fats 4. Oils, fats, sugars and syrups
Croatia	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Dairy products 5. Fish and meat 6. Oils, fats, sugars and syrups 	Macedonia	N/A - FBDG is text only
Cyprus	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Oils and fats 4. Dairy products 5. Fish 6. Meat 7. Vegetables 8. Sugars and syrups 9. Meat 	Malta	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Dairy products 3. Fish, meat and eggs 4. Oils, fats, sugars and syrups
Denmark	<ol style="list-style-type: none"> 1. Cereals 1. Fruits and vegetables 2. Fish, meat, eggs and dairy products 	Netherlands	<ol style="list-style-type: none"> 1. Fruits and vegetables 2. Oils and fats 3. Fish, meat, eggs and dairy products 4. Cereals 5. Beverages

Country	Food groups	Country	Food groups
Estonia	<ol style="list-style-type: none"> 1. Exercise 2. Cereals 3. Vegetables 4. Fruits 5. Dairy products 5. Fish, meat and eggs 6. Oils and fats 7. Sugars and syrups 8. Beverages 	Norway	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Dairy products 4. Fish 5. Meat 6. Vegetables 7. Oils and fats 8. Beverages
Finland	<ol style="list-style-type: none"> 1. Vegetables 2. Fruits 3. Cereals 4. Cereals 5. Dairy products 6. Oils and fats 7. Fish 8. Meat 9. Oils, fats, sugars and syrups 	Poland	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Dairy products 5. Fish, meat and eggs 6. Oils and fats
France	<ol style="list-style-type: none"> 1. Beverages 2. Cereals 3. Fruits and vegetables 4. Exercise 5. Dairy products 6. Fish, meat and eggs 7. Oils, fats, sugars and syrups 	Portugal	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Dairy products 5. Fish, meat and eggs 6. Vegetables 7. Oils and fats 8. Beverages
Georgia	N/A - FBDG is text only	Romania	<ol style="list-style-type: none"> 1. Exercise 2. Beverages 3. Cereals 4. Vegetables 4. Fruits 5. Dairy products 5. Fish, meat and eggs 6. Oils, fats, sugars and syrups
Germany	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Dairy products 5. Fish, meat and eggs 6. Oils and fats 7. Beverages 	Spain	<ol style="list-style-type: none"> 1. Miscellaneous 2. Miscellaneous 3. Miscellaneous

Country	Food groups	Country	Food groups
Greece	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Oils and fats 5. Dairy products 6. Fish 7. Meat 8. Nuts and seeds 9. Cereals 10. Eggs 11. Sugars and syrups 12. Meat 	Sweden	N/A
Greenland	N/A - FBDG is text only	Switzerland	<ol style="list-style-type: none"> 3. Beverages 4. Fruits and vegetables 5. Cereals 6. Fish, meat, eggs and dairy products 7. Oils and fats 8. Oils, fats, sugars and syrups
Hungary	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Meat 3. Dairy products 4. Oils, fats, sugars and syrups 	Turkey	<ol style="list-style-type: none"> 1. Cereals 2. Fish, meat and eggs 3. Dairy products 4. Fruits and vegetables
Iceland	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat and eggs 5. Dairy products 6. Oils and fats 7. Beverages 	United Kingdom	<ol style="list-style-type: none"> 1. Fruits and vegetables 2. Cereals 3. Fish, meat and eggs 4. Dairy products 5. Oils, fats, sugars and syrups 6. Beverages

Table XXII. Food groups in FBDG of North America

Country	Food groups	Country	Food groups
Belize	<ol style="list-style-type: none"> 1. Cereals 2. Fish, meat, eggs and dairy products 3. Fruits 4. Vegetables 5. Vegetables 6. Oils and fats 7. Sugars and syrups 	Guatemala	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Fish and meat 3. Dairy products 4. Sugars and syrups 4. Oils and fats
Bermuda	<ol style="list-style-type: none"> 1. Fruits and vegetables 2. Cereals 3. Dairy products 4. Fish, meat and eggs 	Honduras	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Dairy products 4. Fish and meat 5. Oils, fats, sugars and syrups

Country	Food groups	Country	Food groups
Canada	1. Fruits and vegetables 2. Cereals 3. Dairy products 4. Fish, meat and eggs	Mexico	1. Cereals 2. Vegetables 3. Vegetables 3. Fruits 4. Fish, meat and eggs
Costa Rica	1. Cereals 2. Fruits and vegetables 3. Fish, meat, eggs and dairy products 4. Oils, fats, sugars and syrups	Panama	1. Cereals 2. Fruits and vegetables 3. Meat 4. Dairy products 5. Oils, fats, sugars and syrups
El Salvador	N/A - FBDG is text only	United States of America	1. Vegetables 2. Cereals 3. Fish and meat 4. Fruits 5. Dairy products

Table XXIII. Food groups in FBDG of Oceania

Country	Food groups	Country	Food groups
Australia	1. Cereals 2. Vegetables 3. Fish, meat and eggs 4. Dairy products 5. Fruits	Indonesia	N/A - FBDG is text only
Fiji	1. Fruits and vegetables 2. Cereals 3. Fish, meat and eggs	New Zealand	N/A - FBDG is text only

Table XXIV. Food groups in FBDG of South America

Country	Food groups	Country	Food groups
Antigua and Barbuda	1. Cereals 2. Fish, meat, eggs and dairy products 3. Vegetables 4. Fruits 5. Nuts and seeds 6. Oils and fats 7. Sugars and syrups	Grenada	1. Cereals 2. Fish, meat, eggs and dairy products 3. Vegetables 4. Fruits 5. Vegetables 6. Oils and fats 7. Sugars and syrups
Argentina	1. Cereals 2. Fruits and vegetables 3. Dairy products 4. Fish, meat and eggs 5. Oils and fats 6. Sugars and syrups	Guyana	1. Cereals 2. Fish, meat, eggs and dairy products 3. Oils and fats 4. Vegetables 5. Fruits 6. Vegetables

Country	Food groups	Country	Food groups
The Bahamas	<ol style="list-style-type: none"> 1. Cereals 2. Fish, meat and dairy products 3. Vegetables 4. Fruits 5. Vegetables 6. Oils and fats 7. Sugars and syrups 	Jamaica	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Fish, meat, eggs and dairy products 4. Vegetables 5. Oils and fats
Barbados	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Vegetables 5. Fish, meat, eggs and dairy products 6. Oils and fats 	Paraguay	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Dairy products 3. Fish, meat and eggs 4. Sugars and syrups 4. Oils and fats
Brazil	N/A - FBDG is text only	Puerto Rico	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Fish and meat 5. Dairy products
Chile	N/A - FBDG is text only	Saint Kitts and Nevis	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Fish, meat, eggs and dairy products 4. Nuts and seeds 5. Oils and fats 6. Sugars and syrups
Colombia	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fruits 4. Fish, meat and eggs 5. Dairy products 6. Oils and fats 7. Sugars and syrups 	Saint Lucia	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Fish, meat, eggs and dairy products 4. Vegetables 5. Oils and fats 6. Sugars and syrups
Cuba	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Fish, meat and eggs 3. Dairy products 4. Oils and fats 5. Sugars and syrups 	Saint Vincent and the Grenadines	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 2. Fruits 3. Fish, meat, eggs and dairy products 4. Vegetables 5. Oils and fats 6. Sugars and syrups

Country	Food groups	Country	Food groups
Dominica	<ol style="list-style-type: none"> 1. Cereals 2. Vegetables 3. Fish, meat, eggs and dairy products 4. Fruits 5. Vegetables 6. Oils and fats 	Uruguay	<ol style="list-style-type: none"> 1. Cereals 1. Fruits and vegetables 2. Fish, meat and eggs 2. Dairy products 3. Sugars and syrups 3. Oils and fats
Dominican Republic	<ol style="list-style-type: none"> 1. Vegetables 2. Fish, meat, eggs and dairy products 3. Fruits 4. Cereals 5. Vegetables 6. Oils, fats, sugars and syrups 7. Beverages 	Venezuela	<ol style="list-style-type: none"> 1. Cereals 2. Fruits and vegetables 3. Fish, meat, eggs and dairy products 4. Sugars and syrups 4. Oils and fats

Food item tables

We analysed the presence of the food items: sugars and/or sweeteners, oils and fats, salt, non-caloric beverages and alcoholic beverages in the analysed 93 FBDG. The data is shown in table XXV to XXX, where each table discusses a different continent. The categories discussed whether, sugars and/or sweeteners, oils and fats and salt were mentioned in the FBDG. Furthermore, the presence of (non-) alcoholic beverages was analysed. Each of these categories were not present at all, were present only in the brochure or were present in the figure. If a category was present in the figure, we further classified it into whether it was present as text, as a group of the figure, part of the figure or present as pictures completely separate of the main figure.

Table XXV. Food items in FBDG of Africa

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Benin	Present in brochure	Present in brochure	Present in brochure	Images outside the figure	Present in brochure
Ghana	Mentioned in supportive text in figure	Mentioned in supportive text in figure	Mentioned in supportive text in figure	Present in brochure	Not present
Malawi	Not present	Images as group of the figure	Not present	Present in brochure	Not present
Mauritius	Present in brochure	Present in brochure	Present in brochure	Not present	Present in brochure
Namibia	Images as part of the figure	Images as group of the figure	Mentioned in supportive text in figure	Not present	Mentioned in supportive text in figure
Nigeria	Images as part of the figure	Images as part of the figure	Present in brochure	Images outside the figure	Not present

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
South-Africa	Present in brochure	Images as group of the figure	Present in brochure	Images as part of the figure	Not present

Table XXVI. Food items in FBDG of Asia

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Arab countries	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Not present
Bangladesh	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Not present
China	Present in brochure	Images as group of the figure	Images as group of the figure	Images as part of the figure	Present in brochure
India	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Images outside the figure
Iran	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images outside the figure	Not present
Japan	Not present	Present in brochure	Present in brochure	Images as group of the figure	Present in brochure
Lebanon	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images as group of the figure	Not present
Malaysia	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Not present
Mongolia	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure
Nepal	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure
Oman	Not present	Present in brochure	Not present	Images outside the figure	Not present
Philippines	Images as group of the figure	Images as group of the figure	Present in brochure	Images as group of the figure	Present in brochure
Saudi Arabia	Images as group of the figure	Images as group of the figure	Present in brochure	Images as group of the figure	Not present
Singapore	Not present	Not present	Not present	Images outside the figure	Not present

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
South Korea	Present in brochure	Images as group of the figure	Present in brochure	Images as group of the figure	Present in brochure
Sri Lanka	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Not present
Thailand	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure
Viet Nam	Images as group of the figure	Images as group of the figure	Images as part of the figure	Present in brochure	Present in brochure

Table XXVII. Food items in FBDG of Europe

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Albania	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Austria	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images as group of the figure	Not present
Belgium	Present in brochure	Images as group of the figure	Present in brochure	Images as group of the figure	Present in brochure
Bosnia and Herzegovina	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure
Bulgaria	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images outside the figure	Present in brochure
Croatia	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure
Cyprus	Images as group of the figure	Images as group of the figure	Present in brochure	Images outside the figure	Images outside the figure
Denmark	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Not present
Estonia	Images as group of the figure	Images as group of the figure	Present in brochure	Images as group of the figure	Present in brochure
Finland	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Not present
France	Images outside the figure	Images outside the figure	Images outside the figure	Images as group of the figure	Present in brochure
Georgia	Present in brochure	Present in brochure	Present in brochure	Not present	Present in brochure

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Germany	Present in brochure	Images as group of the figure	Present in brochure	Images as part of the figure	Not present
Greece	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Images outside the figure
Greenland	Mentioned in supportive text in figure	Mentioned in supportive text in figure	Not present	Present in brochure	Present in brochure
Hungary	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Iceland	Not present	Images as group of the figure	Present in brochure	Images as part of the figure	Not present
Ireland	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure
Israel	Images as group of the figure	Images as group of the figure	Present in brochure	Images as group of the figure	Not present
Italy	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure
Latvia	Images as group of the figure	Images as group of the figure	Present in brochure	Images as group of the figure	Not present
Lithuania	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images outside the figure	Not present
Macedonia	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure
Malta	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure	Not present
Netherlands	Not present	Images as group of the figure	Not present	Images as group of the figure	Present in brochure
Norway	Present in brochure	Images as group of the figure	Present in brochure	Images as part of the figure	Not present
Poland	Present in brochure	Images as group of the figure	Present in brochure	Images outside the figure	Present in brochure
Portugal	Present in brochure	Images as group of the figure	Present in brochure	Images as part of the figure	Present in brochure
Romania	Present in brochure	Images as group of the figure	Not present	Images as group of the figure	Present in brochure
Spain	Images as group of the figure	Present in brochure	Present in brochure	Images outside the figure	Not present

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Sweden	Mentioned in supportive text in figure	Mentioned in supportive text in figure	Mentioned in supportive text in figure	Not present	Mentioned in supportive text in figure
Switzerland	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images as group of the figure	Present in brochure
Turkey	Not present	Present in brochure	Present in brochure	Present in brochure	Not present
United Kingdom	Present outside figure	Images as group of the figure	Present outside figure	Present as group of the figure	Not present

Table XXVIII. Food items in FBDG of North America

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Belize	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Not present
Bermuda	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images as part of the figure	Not present
Canada	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure
Costa Rica	Images as group of the figure	Images as group of the figure	Present in brochure	Images outside the figure	Present in brochure
El Salvador	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Not present
Guatemala	Images as group of the figure	Images as group of the figure	Present in brochure	Images as part of the figure	Present in brochure
Honduras	Images as group of the figure	Images as group of the figure	Present in brochure	Images outside the figure	Not present
Mexico	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure
Panama	Images as group of the figure	Images as group of the figure	Present in brochure	Images outside the figure	Not present
United States of America	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure

Table XXIX. Food items in FBDG of Oceania

Country	Sugars and/or sweeteners	Oils and fats	Salts	Non-caloric beverages	Alcoholic beverages
Australia	Images outside the figure	Images outside the figure	Images outside the figure	Images outside the figure	Images outside the figure
Fiji	Not present	Images as group of figure	Not present	Not present	Not present
Indonesia	Not present	Present in brochure	Present in brochure	Present in brochure	Present in brochure
New Zealand	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Present in brochure

Table XXX. Food items in FBDG of South America

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Antigua and Barbuda	Images as group of the figure	Images as group of the figure	Present in brochure	Not present	Not present
Argentina	Images as group of the figure	Images as group of the figure	Not present	Images as part of the figure	Not present
The Bahamas	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Barbados	Present in brochure	Images as group of the figure	Present in brochure	Not present	Not present
Brazil	Present in brochure	Present in brochure	Present in brochure	Not present	Not present
Chile	Present in brochure	Present in brochure	Present in brochure	Present in brochure	Not present
Colombia	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Cuba	Images as group of the figure	Images as group of the figure	Present in brochure	Not present	Not present
Dominica	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Dominican Republic	Images as group of the figure	Images as group of the figure	Images as group of the figure	Images as group of the figure	Not present

Country	Sugars and/or sweeteners	Oils and fats	Salt	Non-caloric beverages	Alcoholic beverages
Grenada	Images as group of the figure	Images as group of the figure	Present in brochure	Images outside the figure	Present in brochure
Guyana	Not present	Images as group of the figure	Present in brochure	Not present	Present in brochure
Jamaica	Present in brochure	Images as group of the figure	Present in brochure	Images outside the figure	Not present
Paraguay	Images as group of the figure	Images as group of the figure	Not present	Images outside the figure	Not present
Puerto Rico	Not present	Present in brochure	Not present	Images as part of the figure	Not present
Saint Kitts and Nevis	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Saint Lucia	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Saint Vincent and the Grenadines	Images as group of the figure	Images as group of the figure	Present in brochure	Present in brochure	Present in brochure
Uruguay	Images as group of the figure	Images as group of the figure	Present in brochure	Images as part of the figure	Not present
Venezuela	Images as group of the figure	Images as group of the figure	Present in brochure	Images as part of the figure	Present in brochure

APPENDIX D

Link of supplementary Appendix D:
<https://drive.google.com/file/d/0B91kDsXFWb4AS3Q2V3dVbUkwT1k>

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