Characteristics of the Japanese Diet Described in Epidemiologic Publications: A Qualitative Systematic Review

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Summary Context: International interest in the Japanese diet has grown in recent years. Objective: The aim of this systematic review was to evaluate and organize the Japanese diet and dietary characteristics from an epidemiological perspective, mainly focusing on the nutritional and dietary elements. Data Sources: PubMed, Web of Science, Japan Medical Abstracts Society, JDream III, and CiNii databases were searched. Study Selection: The eligibility criteria included research with an epidemiological study design that was either cross-sectional, cohort, or case-control-based that defined the dietary patterns of the Japanese diet using dietary pattern analysis. A total of 39 research articles that described the Japanese diet were included. Data Extraction: The data that were extracted included the following: implementing country, location, study design, participant characteristics, key outcomes, methods used in the analysis of dietary patterns, and descriptions of the Japanese diet. Data Synthesis: As a result of the systematic review analyzing the descriptions of the Japanese diet from 39 selected articles, we were able to aggregate the descriptions into 16 categories from 33 factors. After performing a content analysis using a further aggregation of categories, we found that the top three applicable categories were soybeans/soybean-derived products, seafood, and vegetables; these were followed by rice and miso soup. Conclusion: The Japanese dietary content was found to be diverse based on an examination of epidemiological studies; however, we were able to aggregate the content into 16 categories. The Japanese diet is considered to be a dietary pattern that contains a combination of factors: the dietary staple, side dishes, and soup.

Key Words Japanese diet, systematic review, dietary pattern, character, content analysis

International interest in the Japanese diet has grown in recent years. Activities performed for the sake of the protection and succession of Japan's dietary culture have been implemented predominantly by the Ministry of Agriculture, Forestry and Fisheries (<http://www.maff.go.jp/j/keikaku/syokubunka/culture/>), and in 2013, the traditional dietary culture of the Japanese (*washoku*) was registered as a UNESCO Intangible Cultural Heritage (<http://www.maff.go.jp/j/keikaku/syokubunka/ich/>). Furthermore, in 2015, Expo Milan was held, with the theme of Feeding the Planet, Energy for Life; the Japanese government was an official participant (<http://www.maff.go.jp/j/shokusan/gaisyoku/milano/>), and won the gold award (1). From a medical perspective, reports indicate that the Japanese diet reduces the total mortality rate (2) and is related to cancer prevention (3). In a report on dietary guidelines published in 2010 by the U.S. government, it was suggested that the Japanese diet reduces the risk of coronary artery dis-

ease, and it demonstrated there is a strong interest in the Japanese diet (4).

An international joint study by seven countries around the globe reviewed country-specific food culture differences and found that southern European countries on the Mediterranean, such as Italy and Greece, had significantly lower mortality rates from ischemic heart disease compared with other European countries and the U.S., and the preventive effects of what is known as the Mediterranean diet attracted worldwide attention (5). Moreover, the DASH (Dietary Approaches to Stop Hypertension) diet (6, 7) is advocated for the prevention of hypertension in the U.S., with study reports currently ongoing (8).

In this way, these habits are a mainstay of the population's lifestyle, and the significance of evaluating the effect of dietary habits on health is increasing in terms of scientific and policy research. However, the aforementioned US dietary guidelines indicated that accumulation of research findings relating to the Japanese diet is delayed (4). The content of the Mediterranean diet has been organized and defined based on analytical methods (9) looking at dietary patterns comprehensively encompassing dietary lifestyle and evaluating

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Table 1. PECOS criteria used in the present systematic review.

Criteria	Description
Population	Healthy human population with no restriction on age or sex. Studies in participants with disease, who were hospitalized or institutionalized were excluded.
Exposure	Diets defined as Japanese diet using dietary pattern analysis methods.
Comparisons	Diets defined as meals other than Japanese diet using dietary pattern analysis methods.
Outcomes	Outcome is not restricted.
Study designs	Cross-sectional study, cohort study, case-control study.

meal units, rather than simply looking at individual nutrients and foods (10). As a result, scientific investigations have been undertaken, including cohort research, interventional studies, and meta-analyses (11, 12), and these studies have clarified the effect on the reduction of risk factors for total mortality and cardiovascular diseases. Now, it is vital to move forward with ascertaining the characteristics and content of the Japanese diet to undertake research relating to its disease prevention and health promotion aspects.

In 2014, the National Agriculture and Food Research Organization, and the Ministry of Agriculture, Forestry and Fisheries inaugurated a research project relating to the evaluation of the Japanese diet in collaboration with medical and nutritional experts entitled Scientific and Multifaceted Verification of the Japanese Diet to Contribute to World Health, which forms part of the promotion of creating innovative technology, and thus, interdisciplinary verification of the Japanese diet is underway (<http://nihonshoku.jp/>). As part of this project, this research was implemented with the aim of evaluating and organizing Japanese dietary characteristics from an epidemiological perspective, mainly focusing on nutrition and diets.

METHODS

Literature was selected using the systematic review method (13), in which the main elements were extracted from the selected articles, compiled into categories, and the descriptions of the Japanese diet were analyzed. This report conforms to the reporting guidelines for qualitative research set out by O'Brien et al. (14).

Systematic Review.

Study eligibility criteria: Eligibility criteria are shown in Table 1. The eligibility and exclusion criteria were set before implementing the review. The target population was a healthy general population without disease, not hospitalized or institutionalized, and no limits were set for age or sex. The research design was an epidemiological study that was either cross-sectional, cohort, or case-control based. Moreover, in terms of the Japanese diet that was subject to evaluation, the types of target research were those that analyzed dietary patterns, after implementing food and dietary behavior surveys, and research that defined the dietary patterns of the Japanese diet. Non-English and non-Japanese articles, literature other than original articles (i.e., conference proceedings, letters, and opinions) and review articles were

excluded from the study. No limitations were placed on publication date or format (e.g., pamphlet media or electronic media).

Data sources: We conducted our search using the following electronic databases: PubMed (since 1966), Web of Science (since 1945), Japan Medical Abstracts Society (*Ichushi*) (since 1977), JDream III (since 1981), and CiNii (since 2004). We investigated related books, journals, and government-issued reports. We also collected applicable literature from the reference lists for the aforementioned literature (final search date: October 25, 2015).

Search: We conducted our search using the search formula shown in Table 2. Other searches were conducted by changing the search formula shown in Table 2 to suit the format of each of the databases.

Literature selection: From the list of literature obtained in the search, two people independently sorted the titles and abstracts based on the criteria in Table 1 into "use", "exclude", and "undecided", and all the literature other than pieces excluded by both individuals was procured. We then further conferred on the candidate literature, and any literature exhibiting a difference of opinion was resolved by a third party.

Data extraction process: The authors created a data extraction sheet in advance, and one other individual checked the inputted data. The items in the data extraction sheet were set as literature characteristics (e.g., implementing country, location, study design, participant characteristics, key outcomes, and analysis methods of dietary patterns) and descriptions of the Japanese diet (e.g., explanations of foods included in Japanese dietary patterns). The analysis methods of the dietary patterns were organized as follows: deductive reasoning was used for methods that pre-defined the diets that the researcher was interested in during the research planning stage, while inductive reasoning was used for methods that defined the diets after the fact using methods such as factor analysis from the results of a food survey.

Analysis of data describing the Japanese diet.

Extraction and categorization of the main points in the Japanese diet: We partly reorganized the method used by Hsieh and Shannon (15), whose group extracted the main points related to the Japanese diet, and amalgamated them into categories based on similarities. More specifically, (i) we carefully reread the literature, (ii) identified sections where the names and details of Japa-

Table 2. Example of the search strategy in PubMed for publications about the Japanese diet.

PubMed search strategy, 25 October 2015 (no limits)		
Search	Keywords	Results
#1	((“japan”[MeSH Terms] OR (“japan”[MeSH Terms] OR “japan”[All Fields])))	1013591
#2	“japanese”[All Fields]	496636
#3	(#1 OR #2)	1359149
#4	“food”[MeSH Terms]	561095
#5	“diet”[MeSH Terms]	205955
#6	“meals”[MeSH Terms]	1571
#7	“food quality”[MeSH Terms]	71211
#8	“eating”[MeSH Terms]	60138
#9	“nutrition policy”[MeSH Terms]	7145
#10	“nutritional requirements”[MeSH Terms]	17733
#11	(#4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10)	773611
#12	“food habits”[MeSH Terms]	24030
#13	“feeding behavior”[MeSh Terms]	129499
#14	(#12 OR #13)	129499
#15	(#11 OR #14)	831623
#16	((index*[tiab] OR score*[tiab] OR indexes[tiab] OR indices[tiab] OR scoring[tiab]) AND (dietary score*[All Fields] OR adequacy index*[All Fields] OR Diet Quality Index*[All Fields] OR Food Score*[All Fields] OR Diet Score*[All Fields] OR Dietary Pattern Score*[All Fields] OR “healthy eating index”[All Fields]) OR (“Diet Quality Index”[All Fields] OR “Recommended Food Score”[All Fields] OR “Eating Plan Score”[All Fields] OR “Diet Score”[All Fields] OR “Dietary Pattern Score”[All Fields]))	1470
#17	((“diet quality”[All Fields] OR dietary[tiab] OR nutrient*[All Fields] OR eating[tiab] OR food[tiab] OR diet[tiab] OR diet[mh]) AND (pattern*[All Fields] OR habit*[All Fields] OR profile*[All Fields] OR recommendation*[All Fields] OR guideline*[All Fields]) AND (“Principal component analysis”[tiab] OR “Factor analysis”[tiab] OR “Cluster analysis”[tiab] OR “rank regression”[tiab] OR “Discriminant analysis”[tiab] OR “Cluster Analysis”[Mesh Terms] OR “Factor Analysis, Statistical”[Mesh Terms] OR “Principal Component Analysis”[Mesh Terms] OR “Discriminant Analysis”[Mesh Terms] OR “Regression Analysis”[Mesh Terms]))	8194
#18	((“diet quality”[All Fields] OR dietary pattern*[All Fields] OR diet pattern*[All Fields] OR eating pattern*[All Fields] OR food pattern*[All Fields] OR eating habit*[All Fields] OR dietary habit*[All Fields] OR food habit*[All Fields] OR dietary profile*[All Fields] OR food profile*[All Fields] OR diet profile*[All Fields] OR eating profile*[All Fields] OR dietary guideline*[All Fields] OR dietary recommendation*[All Fields] OR food intake pattern*[All Fields] OR dietary intake pattern*[All Fields] OR diet pattern*[All Fields]))	38995
#19	((“Guideline Adherence”[Mesh Terms] AND (“diet”[All Fields] OR “food”[All Fields] OR “eating”[All Fields] OR “eat”[All Fields] OR “dietary”[All Fields] OR “feeding”[All Fields] OR “nutrition”[All Fields] OR “nutrient”*[All Fields]) OR “adherence”[All Fields]) AND (nutrient* OR nutrition OR diet OR dietary OR food OR eat OR eating) AND (guideline* OR guidance OR recommendation*))	2749
#20	(#16 OR #17 OR #18 OR #19)	45782
#21	((“japanese diet”[All Fields] OR “japanese diets”[All Fields] OR “japanese style diet”[All Fields] OR “japanese style diets”[All Fields] OR “japanese food”[All Fields] OR “japanese foods”[All Fields] OR “japanese style food”[All Fields] OR “japanese style foods”[All Fields]))	360
#22	((“japan”[All Fields] OR “japanese”[All Fields]) AND (“traditional diet”[All Fields] OR “traditional diets”[All Fields] OR “traditional food”[All Fields] OR “traditional foods”[All Fields]))	85
#23	(#21 OR #22)	441
#24	(#3 AND #15)	42053
#25	(#24 OR #23)	42205
#26	(#25 AND #20)	1572

nese diet were described, (iii) focused on descriptions relating to explanation of dietary patterns (i.e., food, food groups, and cooking) and extracted those descriptions as factors, (iv) summarized the extracted factors as a list for each of the literature pieces, (v) grouped similar factors based on the list of factors and created categories, (vi) checked that there were no inconsistencies between the different categories created, and finally, (vii) we aggregated the data into categories. We reorganized

parts of the procedures for (ii), (iii), and (iv) reported by Hsieh and Shannon (15) for this investigation. Furthermore, factor extraction and category aggregation were investigated based on the opinion of our supervisor (a physician specializing in epidemiology and public health, and experienced in qualitative research).

Analyzing the content of descriptions of the Japanese diet: We performed the content analysis (16) using the aggregated categories. Specifically, we reread the descrip-

Fig. 1. Flow chart summary of the search strategy.

tive data on the Japanese diet obtained from each article and confirmed that the description data were applicable to the aggregated category. Following this, one more individual (a registered dietitian experienced in qualitative research) checked the inputted data. After the data were checked, agreement was reached on any difference of opinion through discussion between the two parties.

RESULTS

Literature search and selection of target literature

We conducted a database search and a non-database search, and once we excluded any duplication of complete literature matches, there were 9,141 articles. We then sorted the literature using eligibility criteria based on titles and abstracts. As a result, we procured the full text for 274 articles. We then checked the full text of these articles and eventually selected 39 articles. Figure 1 shows the flowchart for literature selection.

Literature characteristics

The list of the 39 selected articles is shown in Table

3. The regions where the studies were implemented encompassed 5 countries, and the implementation locations were as follows: 23 articles were region based, 10 articles were occupation based, 5 articles were school based, and 1 was hospital based. In terms of research design, 25 articles were cross-sectional studies, 11 articles were cohort studies, and 3 articles were case-control studies. There were articles in which the age of the subjects ranged from 18.1 y (mean) to 69.8 y (mean), and there were 6 articles in which the age of the subjects was not stated. Factor analysis was adopted in 35 articles as the analysis method for dietary patterns, while 3 articles used score analysis, and 1 article used reduced rank regression analysis.

Description of the Japanese diet

The descriptions of the Japanese diet from 39 articles are shown as partial excerpts in Table 4.

Japanese diet factors and categories

We obtained 40 descriptions of the Japanese diet from 39 articles. One article (literature reference 36, Kaku-

Table 3. Study characteristics of eligible studies included in this review.

Reference	Country	Setting	Study design	n=subjects (%female)	Age*	Outcome	Analytic methods of dietary pattern
1 Hankin 1975	United States (Hawaii)	Region	Cross-sectional	6,663 (0)	ND	Dietary intake	Index Analysis
2 Nomura 1978	United States (Hawaii)	Region	Case-control	6,860 (0)	ND	Breast cancer in spouse	Factor Analysis
3 Okimasu 1981	Japan, Brazil	Region	Cross-sectional	289 (100)	ND	Dietary intake	Factor Analysis
4 Kumasawa 1983	Japan	Elementary school	Cross-sectional	619 (50)	ND	Dietary intake	Factor Analysis
5 Nakamura 2001	Japan	Region	Case-control	20,477 (45)	20–79	Sudden deafness	Factor Analysis
6 Mizoue 2005	Japan	Occupational	Cross-sectional	1,341 (0)	ND	Colon cancer	Factor Analysis
7 Mizoue 2006	Japan	Occupational	Cross-sectional	2,106 (0)	46.4 (3.7)	Type II diabetes	Factor Analysis
8 Okubo 2006	Japan	Region	Cross-sectional	291 (100)	46.4 (3.7)	Bone density	Factor Analysis
9 Hirose 2007	Japan	Hospital	Case-control	24,218 (100)	40–79	Breast cancer	Factor Analysis
10 Okubo 2007	Japan	School	Cross-sectional	3,770 (100)	18.1 (0.3)	Functional constipation	Factor Analysis
11 Pierce 2007	United States	Region	Cross-sectional	496 (56)	Nisei 69.8 (8.0), Sansei 41.8 (8.0)	BMI, CRP	Factor Analysis
12 Shimazu 2007	Japan	Region	Cohort	40,547 (ND)	40–79	Mortality rate of cardiovascular disease patients	Factor Analysis
13 Okubo 2008	Japan	School	Cross-sectional	3,760 (100)	18–20	BMI	Factor Analysis
14 Nakamura 2009	Japan	Region	Cohort	9,086 (56)	30-ND	Mortality rate	Index Analysis
15 Gimeno 2010	Brazil	Region	Cross-sectional	1,283 (54)	57.1 (12.4)	Anthropometric measurements, Lifestyle-related diseases	Factor Analysis
16 Monma 2010	Japan	Region	Cohort	877 (56)	70-ND	Bone fracture from falls	Factor Analysis
17 Nanri 2010	Japan	Occupational	Cross-sectional	521 (41)	21–67	Depression	Factor Analysis
18 Okubo 2010	Japan	Region	Cross-sectional	184 (50)	31–76	Dietary intake	Factor Analysis
19 Zenitani 2010	Japan	Occupational	Cross-sectional	634 (26)	39.5 (8.3)	BMI	Factor Analysis
20 Miyake 2011	Japan	Region	Cohort	763 (100)	30.0 (4.0)	Asthma and eczema	Factor Analysis
21 Okubo 2011	Japan	Region	Cohort	865 (100)	29.9 (4.0)	Post-natal depression	Factor Analysis
22 Kumeda 2011	Japan	Region	Cross-sectional	763 (62)	56.3 (13.1)	Irritable bowel syndrome	Factor Analysis
23 Akter 2012	Japan	Occupational	Cross-sectional	456 (40)	21–67	CRP	Factor Analysis
24 Guo 2012	Japan	Occupational	Cross-sectional	702 (0.0)	44.5 [†] [37.8, 54.2]	Adiponectin levels	Factor Analysis
25 Nanri 2012	Japan	Region	Cross-sectional	498 (51)	40–69	Dietary intake	Factor Analysis
26 Yap 2012	Japan, Malaysia	Region	Cross-sectional	136 (39)	43.0 (11.0)	Gene polymorphism	Factor Analysis
27 Akter 2013	Japan	Occupational	Cross-sectional	460 (38)	21–67	Lifestyle-related diseases	Factor Analysis
28 Morinaka 2013	Japan, Poland	University	Cross-sectional	100 (100)	19.6 (1.4)	Dietary intake	Factor Analysis
29 Nanri 2013	Japan	Region	Cohort	89,037 (54)	40–69	Suicide	Factor Analysis
30 Nanri 2013	Japan	Region	Cohort	64,705 (57)	40–69	Type II diabetes	Factor Analysis
31 Ozawa 2013	Japan	Region	Cohort	1,006 (57)	68.0 (ND)	Dementia	Reduced Rank Regression
32 Suzuki 2013	Japan	Occupational	Cross-sectional	2,266 (11)	21–65	Depression	Factor Analysis
33 Guo 2014	Japan	Region	Cross-sectional	1,096 (23)	46.2 (11.2)	Lifestyle-related diseases	Factor Analysis
34 Kumagai 2014	Japan	Region	Cohort	44,097 (52)	40–79	Colon cancer	Factor Analysis
35 Tomata 2014	Japan	Region	Cohort	14,260 (55)	73.9 (6.0)	Life dysfunction	Factor Analysis
36 Kakutani 2015	Japan	University	Cross-sectional	664 (72)	18–24	Dietary intake	Index Analysis
37 Kashino 2015	Japan	Occupational	Cross-sectional	509 (42)	20–65	Adipokine level	Factor Analysis
38 Kurotani 2015	Japan	Occupational	Cross-sectional	2,025 (11)	18–70	Sleeping disorder	Factor Analysis
39 Niu 2015	Japan	Region	Cohort	980 (25)	ND	BMI, blood pressure, fasting blood sugar, blood lipids	Factor Analysis

Abbreviation: BMI, body mass index; CRP, C-reactive protein; ND, data not provided. * Mean (SD) or Range. [†] median [interquartile range].

Table 4. Definition of Japanese diet (Excerpt).

Reference	Definition
14 Nakamura 2009	Then, we defined seven components from the nutritional survey to measure a healthy reduced-salt Japanese diet. The components included egg intake ≤ 2 eggs/wk, fish intake once or more often in 2 d, meat intake ≤ 2 times/wk, tsukemono intake once or more often per day, infrequent intake of soup with noodles, use of low-salt soya sauce and occasional drinking.
38 Kurotani 2015	The third pattern was characterized by: high intakes of fish and shellfish, natto (fermented soy-beans), buckwheat noodles and pickled green leafy vegetables, and low intakes of red meat; this pattern was named the traditional Japanese dietary pattern.

Table 5. Code and Category of Japanese diet in this review.

Codes	Categories
Rice	Rice
Udon Soba	Soba, udon
Seafood Fish Salmon Kamaboko (fish paste) Mackerel Shellfish	Seafood
Meat	Meat
Eggs	Eggs
Soy bean Soy bean-derived products Tofu Natto	Soy beans/Soy bean-derived products
Vegetables Green and yellow vegetables Light-colored vegetables Carrot Pumpkin Cabbage	Vegetables
Seaweed	Seaweed
Mushrooms	Mushroom
Potato	Potatoes
Pickles	Pickles
Miso soup	Miso soup
Milk Dairy products	Milk/dairy products
Green tea	Green tea
Fruit	Fruit
Miso Soy sauce Reduced-salt soy sauce	Miso, soy sauce

tani 2015) described the Japanese diet as a “combination of dietary staples, main dishes, and side dishes”, but this was excluded from analysis, as it did not describe the names of the food or the manner of cooking. As a result, 33 factors were extracted from the 39 pieces of descriptive data. Next, the 33 extracted factors were aggregated into 16 categories referencing food groups in standard tables of food composition in Japan (Table 5) (17).

Analyzing the content of data describing the Japanese diet

The results of content analysis of the 39 descriptions of the Japanese diet based on 16 categories are shown in Table 6.

The number of applicable categories for the 39 descriptions ranged from two categories (literature reference 9: Hirose 2007; literature reference 18: Okubo 2010; literature reference 19: Zenitani 2010; reference 29: Nanri 2013) to 8 categories (literature reference 2: Nomura 1978; literature reference 35: Tomata 2014), and both the median and mode category values were 5.

The number of categories applicable to the descriptions of the Japanese diet is shown in Fig. 2. The top three categories with the highest number of descriptions were soybeans/soybean-derived products (27 descriptions), seafood (23 descriptions), and vegetables (20 descriptions). This was followed by rice (18 descriptions) and miso soup (16 descriptions).

DISCUSSION

As a result of analyzing the descriptions of the Japanese diet from 39 articles adopted through systematic review, we were able to aggregate the descriptions into 16 categories from 33 factors. After performing the content analysis using further aggregated categories, we found that the top 3 applicable number of categories were soybeans/soybean-derived products, seafood, and vegetables, followed by rice and miso soup.

Factor analysis was used in 35 of the 39 articles obtained, and 1 article used reduced rank regression analysis. There were broadly two methods used for defining dietary patterns (18, 19). Deductive reasoning methods were used where the researcher pre-defined the Japanese diet at the research planning stage, and inductive reasoning methods was used where the Japanese diet was defined after the fact using methods such as factor analysis from the results of a food survey. The former is used in cohort studies for hypothesis testing, while

Table 6. Categories found in definition of Japanese diet.

	Reference	Aggregated 16 categories															
		Rice	Soba, udon	Seafood	Meat	Eggs	Soy beans/ Soy bean- derived products	Vegetables	Sea- weed	Mush- room	Pota- toes	Pickles	Miso soup	Milk/ dairy products	Green tea	Fruit	Miso, soy sauce
1	Hankin 1975	●	●	●			●						●		●		
2	Nomura 1978	●	●	●			●		●			●	●		●		
3	Okimasu 1981	●		●	●							●					●
4	Kumasawa 1983	●		●			●	●									
5	Nakamura 2001			●		●		●						●			
6	Mizoue 2005			●			●	●	●			●			●		
7	Mizoue 2006			●			●	●	●			●			●		
8	Okubo 2006	●					●						●				
9	Hirose 2007	●											●				
10	Okubo 2007	●					●						●				
11	Pierce 2007	●		●			●					●					●
12	Shimazu 2007			●			●	●	●						●	●	
13	Okubo 2008	●					●						●				
14	Nakamura 2009			●								●					
15	Gimeno 2010			●			●	●									●
16	Monma 2010	●					●						●				
17	Nanri 2010						●	●		●					●	●	
18	Okubo 2010	●											●				
19	Zenitani 2010	●				●											
20	Miyake 2011	●		●									●				
21	Okubo 2011	●		●								●	●				
22	Kumeda 2011	●					●						●				
23	Akter 2012						●	●		●					●	●	
24	Guo 2012			●			●	●	●				●		●		
25a	Nanri 2012						●	●	●	●	●				●	●	
25b	Nanri 2012	●		●								●	●			●	
26	Yap 2012			●				●	●			●	●				●
27	Akter 2013						●	●		●					●	●	
28	Morinaka 2013	●		●			●	●	●								
29	Nanri 2013			●								●					
30	Nanri 2013	●		●								●	●				
31	Ozawa 2013						●	●	●					●			
32	Suzuki 2013				●		●	●	●	●							
33	Guo 2014			●			●	●	●			●			●	●	
34	Kumagai 2014			●			●	●	●						●	●	
35	Tomata 2014			●			●	●	●	●	●	●				●	
37	Kashino 2015						●	●	●	●						●	
38	Kurotani 2015		●	●			●					●					
39	Niu 2015						●	●	●				●		●	●	

●Description found.

Fig. 2. The number of correspondences with the categories from content analysis.

the latter is typified by reports that conducted factor analysis on cross-sectional study data for food surveys. Problems indicated with inductive reasoning include the researcher's subjective views becoming involved in the naming of the dietary patterns for the obtained results (20). Specifically, among different researchers, the same diet content may be defined using different dietary pattern names, or conversely, different diet content may be defined using the same name. In other words, even in the results obtained in this study, Japanese diets given the same name does not necessarily guarantee that the diets have the same content. Therefore, it is difficult to acquire common opinions on the Japanese diet from the accumulated results of factor analysis where there tends to be arbitrary interpretation of the results by researchers.

If we consider each description of the Japanese diet from the perspective of dietary patterns, which are a combination of food and cooking, then the descriptions include a combination of multiple factors (dietary staples, soups, and side dishes). There are multiple explanations of the Japanese diet, including perspectives on food culture that include viewpoints on historical changes, ethnic, ideological and economic factors (<http://www.maff.go.jp/j/keikaku/syokubunka/culture/wasyoku.html>). One of the explanations about the Japanese diet is the basic pattern of “one soup and three side dishes,” advocated by the Ministry of Agriculture, Forestry and Fisheries, which consists of rice and soup and a side dish (main dish and side dish). This description is the Japanese dietary pattern considered from the perspective of the composition of one meal (21). The descriptions of the Japanese diet in this study fit multiple categories. From the perspective of the meal composition for the Japanese dietary pattern for these categories, there were 10 articles where the data were applicable to

multiple categories as a combination of the staple food, one or more side dishes and soup (literature reference 1: Hankin 1975; literature reference 2: Nomura 1978; literature reference 8: Okubo 2006; literature reference 10: Okubo 2007; literature reference 13: Okubo 2008; literature reference 16: Monma 2010; literature reference 20: Miyake 2011; literature reference 21: Okubo 2011 literature reference 22: Kumeta 2011; literature reference 25: Nanri 2012). These articles comprehensively reported the diet content as the dietary pattern known as the Japanese diet, and after confirming multiple categories of each description of the Japanese diet, we considered that it is a dietary pattern comprising multiple factors including the dietary staple, side dishes and soup. The basic pattern of “one soup and three side dishes”, advocated by the Ministry of Agriculture, Forestry and Fisheries, which is based on a typical traditional Japanese diet, is also supported by the findings of an epidemiological study on nutrition and diet. In this way, it could be presented as a common understanding of the Japanese diet.

We hope that these findings can be used as basic data for research in other research projects (<http://nihon-shoku.jp/>) (epidemiological studies to create a Japanese dietary score, etc.), or they can be used as material for discussion with specialists in other fields including cooking, food culture and history for multifaceted investigation of the Japanese diet.

Limitations

This study targeted epidemiological studies on the topic of nutrition and diet with the aim of organizing the characteristics of the Japanese diet to verify its relationship with health, including health promotion and disease prevention in target populations. Therefore, we have not necessarily comprehensively incorporated all the targets involved in the Japanese diet. It is also essen-

tial to be careful when interpreting the categories with a large number of reports as having a high degree of importance. These categories should only be viewed as having the range that contains the common items recognized as Japanese dietary characteristics.

CONCLUSION

Japanese diet content was diverse when using epidemiological studies; however, we aggregated the content into 16 categories. We found that the top 3 categories were soybeans/soybean-derived products, seafood, and vegetables, followed by rice and miso soup. The Japanese diet is considered to be a dietary pattern that contains a combination of factors: the dietary staple, side dishes, and soup.

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