

The 'star' diets in the digital press (2011-2020). Semantic analysis on eating patterns

Las dietas 'estrella' en la prensa digital (2011-2020). Análisis semántico sobre patrones de alimentación

As dietas 'estrelas' da imprensa digital (2011-2020). Análise semântica do discurso sobre padrões alimentares

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ABSTRACT | This research conducts a semantic analysis of the Spanish digital press regarding diets and eating habits during the last decade. The period under study begins on January 1, 2011 and ends ten years later, on December 31, 2020. We carried out an analysis of the content related to diets and nutrition guidelines that appeared in the digital versions of the four most widely read generalist newspapers at the national level (elpais.com, elmundo.es, lavanguardia.com and abc.es). 643 records were obtained and examined using the T-LAB software. The results show that the press especially addresses especially the characteristics of five types of diet (Mediterranean, DASH, ketogenic, vegan and vegetarian) and the effects they have on health, especially the Mediterranean diet. The news are linked to numerous ailments that the Mediterranean diet can reduce or prevent. It is observed that this information has moved to scientific contexts that link this diet with a balanced and healthy lifestyle.

KEYWORDS: diets; nutrition; feeding; digital press; linguistic.

HOW TO CITE

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RESUMEN | Esta investigación realiza un análisis semántico de la prensa digital española acerca de las dietas y los hábitos de alimentación durante la última década. El período objeto de estudio se inicia el 1 de enero de 2011 y finaliza diez años después, el 31 de diciembre de 2020. Se lleva a cabo un análisis de los contenidos relativos a dietas y pautas de nutrición aparecidos en las versiones digitales de las cuatro cabeceras generalistas más leídas a nivel nacional (elpais.com, elmundo.es, lavanguardia.com y abc.es). Se han obtenido 643 registros que se han examinado mediante el software T-LAB. Los resultados muestran que la prensa aborda, especialmente, las características de cinco tipos de dieta (mediterránea, DASH, cetogénica, vegana y vegetariana), y los efectos que tienen en la salud, especialmente la dieta mediterránea. Las noticias se vinculan con numerosas dolencias que la dieta mediterránea puede reducir o prevenir. Se observa que estas informaciones se han desplazado a contextos científicos que enlazan esta dieta con un estilo de vida equilibrado y saludable.

PALABRAS CLAVE: dietas; nutrición; alimentación; prensa digital; lingüístico.

RESUMO | Esta pesquisa realiza uma análise semântica da imprensa digital espanhola sobre dietas e hábitos alimentares na última década. O período em estudo inicia-se em 1 de janeiro de 2011 e termina dez anos depois, em 31 de dezembro de 2020. Uma análise do conteúdo relacionado às dietas e orientações nutricionais que aparecem nas versões digitais das quatro manchetes generalistas mais lidas em todo o país (elpais.com, elmundo.es, lavanguardia.com e abc.es). Um total de 643 registros foram obtidos e examinados usando o software T-LAB. Os resultados mostram que a imprensa aborda, em particular, as características de cinco tipos de dieta alimentar (mediterrânica, DASH, cetogénica, vegana e vegetariana) e os efeitos que têm na saúde, especialmente a dieta mediterrânica. As notícias estão relacionadas com várias doenças que a dieta mediterrânea pode reduzir ou prevenir. Observa-se que essas informações têm sido deslocadas para contextos científicos que vinculam essa alimentação a um estilo de vida equilibrado e saudável.

PALAVRAS-CHAVE: dietas; nutrição; alimentação; mídia digital; lingüístico.

INTRODUCTION

Food sociology is a relatively recent area of work, which in recent years has gained international scientific relevance (Sanz-Porras, 2008). As a field of research it analyzes and explains the problems arising from food globalization, addresses the processes of the so-called food modernity, and allows understanding the causes of these changes in developed societies and their consequences (Díaz-Méndez & García-Espejo, 2014).

Among the social causes of such changes, it is crucial to consider those occurring in the 80s of the 20th century, when foods subjected to transformation processes gained presence with the resulting diversification and segmentation of consumption (Langreo & Germán, 2018). This multiplied the supply of processed foods in the context of a new model of food consumption. According to these authors, an increasing concern about the effects of food begins, translated into a new trend: food out-of-home spending, but also food pathologies: obesity, bulimia, anorexia, etc. With the implementation of the European single market in the 1990s, food expenditure is shifting towards diversification into higher quality, healthier, processed and personalized products. There are new consumer segments emerging, such as those of organic, vegetarian, or local products, collectives that assign a lot of importance to differential quality (Langreo & Germán, 2018).

Dietary health concerns are growing and expanding nowadays, further exacerbated by the COVID-19 pandemic. The trend of dietary changes during lock-down in Spain points to increased consumption of healthy foods, decreased consumption of foods of less nutritional interest, and an increase in the home cooking habit (Pérez-Rodrigo et al., 2020).

Regarding diets to treat obesity, weight recovery and the frequent rebound effect are not risk-free. Therefore, “promoting education in nutrition and healthy lifestyle habits in the population is everyone’s responsibility” (Bretón Lesmes, 2016, p. 204).

The media play a fundamental role in this co-responsibility. With the leap of diets from the health field to the popular sphere, the influence of fashion, advertising and image are gaining presence in this area (Díaz-Méndez & González Álvarez, 2008). Indeed, there is evidence of the media’s potential to contribute to modify eating habits and other lifestyles in a favorable way, impacting on a better state of health of the population (Aranceta-Bartrina, 2016). Hence the importance of analyzing their contents.

This paper seeks to study how the digital press disseminates the different diets so as to identify which ones have a higher media visibility. It also aims to explore in which semantic territories the term diet is located.

The communicational gaze of this research represents a novelty for studies on the food field in Spain (Díaz-Méndez & García-Espejo, 2014), contributing to reinforce its relevance.

The social and media interest in diets

Social and media interest in food health issues has been growing since the beginning of the 21st century with important milestones, such as the Nutrition, Physical Activity and Obesity Prevention strategy (NAOS, by its Spanish acronym). It began in 2005 and places Spain as a pioneer in the implementation of a global policy to promote healthy eating and physical activity, and prevent obesity (Ministerio de Sanidad y Consumo, 2021). Several authors argue that the media create reference frames that contribute to the creation of social mental images and, therefore, mold and shape society (Cuesta et al., 2008; López Nomdedeu & Lobato Ramos, 2007).

A year after the NAOS strategy, Fúster and colleagues (2006) conducted a quantitative analysis of the food news published in the Madrid press, which found that the term diet appears accompanied by different surnames: one is Mediterranean, although the proportion of information dedicated to slimming diets or the Atkins diet, among other miracle diets, is also noteworthy. They also establish that the most repeated word in the news directly related to food is obesity, followed by anorexia, bulimia, and eating disorders.

At the international level, the contributions that try to grasp the factors that influence the perceived quality of websites that report on diets and nutrition are very interesting (Jung et al., 2016). They suggest that the variables message accuracy as well as source expertise are related to credibility. Diets have also been the subject of study in the context of social networks. For example, the analysis of the influence of unhealthy food and beverage marketing through social networks and advertising games (McCarthy et al., 2022), or in the case of the United States the research on how social networks affect healthy behaviors (Williams et al., 2014).

In Spain, the approval of Law 17/2011 of July 5, on food safety and nutrition (2011), providing measures to know the potential risks related to a food or any of its components, is another example of social concern that, in addition, extends to the media landscape and marks the beginning of this research analysis.

This law was passed to consolidate the NAOS strategy, a nationwide health plan to reverse the trend in the prevalence of obesity by promoting healthy eating and physical activity. Two years later, the publication of the *Libro Blanco de la Nutrición en España* (White Book on Spanish Nutrition) (Varela-Moreiras, 2013), still stresses that the eating habits of the Spanish population are inadequate and cause malnutrition and health problems such as overweight and obesity.

In this scenario, García Lucio (2015) identifies a series of mistakes made by the press in its coverage of food issues in these years, highlighting that it has failed in reporting on the Mediterranean diet as a lifestyle, by focusing too much on the value of a single product, such as olive oil, due to its importance for the Spanish economy.

Diets and trends

The media have also contributed to incorporate diet-related terms into the social imaginary. This is the case of nomenclatures such as DASH, ketogenic, vegetarian, Atkins and, of course, Mediterranean. In turn, the designers of miracle diets describe them as healthy and with strange properties, but always with undoubted benefits (Jáuregui-Lobera, 2017). According to Moreno-Castro (2006), charlatans, through the press, offered and offer the solution to all of life's problems by mixing meaningless words with mantras.

Moreiras and colleagues (2009) prepared a document for the Spanish Nutrition Foundation and the Institute of Nutrition and Eating Disorders of the Community of Madrid to publicize truths and fallacies regarding diets. This work includes a taxonomy according to the grounds to which they attribute their efficacy. It includes more than 60 diets with their descriptions, characteristics and effects. It tries to raise awareness of the fact that a correct diet “is one that meets the requirements of being balanced, varied and moderate and that makes it possible to maintain an optimal health condition” (Moreiras et al., 2009, p. 3). And it is on this point where there is consensus on an ideal dietary model: the Mediterranean diet. It is the dietary model most described for its benefits worldwide and the reference healthy model (Serra-Majem, 2017).

Beyond a set of foods, the Mediterranean diet should be understood as a cultural model that involves the way in which food is selected, produced, processed and distributed, giving rise to an ecological model, as it represents a healthy, affordable and environmentally sustainable nutritional pattern (Serra-Majem & Ortiz-Andrellucchi, 2018). Along the same lines, the recommendations of the *Guías alimentarias para la población española* (Food guides for the Spanish population) (Aranceta Bartrina et al., 2016), which promote a balanced, supportive and sustainable diet integrated by seasonal products, stand out.

It is also recognized and valued worldwide for its proven benefits on health and disease (Márquez-Sandoval et al., 2008). Numerous researches propose it as a form of healthy eating, since it is related to low rates of chronic diseases and high life expectancy among the populations that consume it (López-Gil et al., 2020).

This consensus differs from its treatment in the media. Examined by various authors (García Lucio, 2015), the media present its benefits, but without providing quality scientific information on this diet.

OBJECTIVES

The main goal of this paper is to interpret in theoretical terms how the frames of meaning of the term diet are constructed in the narrative of the Spanish digital press during a decade, from January 1, 2011 to December 31, 2020. In this way, it will be possible to determine the taxonomy made by these media regarding nutritional patterns and, specifically, to examine the aspects linked to the Mediterranean diet.

Based on previous research (Roger-Monzó et al. 2021; Fúster et al. 2019; García-Lucio, 2015), we pose the following research questions: Which diets have greater visibility in the press? What attributes are they related to?

For this purpose, we conducted a semantic analysis of the contents related to diets and nutrition guidelines appearing in the digital versions of the four most widely read generalist newspapers at the national level (*elpais.com*, *elmundo.es*, *lavanguardia.com*, and *abc.es*). As in the field of food, this type of analysis has been carried out to examine the journalistic account of political (De Marco & Robles, 2011), health (Cano-Orón & Moreno-Castro, 2017), or business (MartíSánchez et al., 2019) topics, among others.

METHODOLOGY

The linguistic corpus of the contents related to this topic published in the digital versions of the four most widely read general newspapers nationwide was analyzed to explore and evaluate the online press' account of diets and eating patterns. According to data from the General Media Study of the 3rd wave of 2020, the four main paid newspapers, which also have a different ideological profile, are: *El País* (951,000 readers/day), *El Mundo* (622,000 readers/day), *La Vanguardia* (482,000 readers/day), and *ABC* (433,000 readers/day) (<https://reporting.aimc.es/index.html#/main/cockpit>).

The period analyzed begins on January 1, 2011 with the approval of Law 17/2011 on Food Safety and Nutrition and ends ten years later, on December 31, 2020. The search for information on diets was performed using the Factiva[®] tool, an information database owned by Dow Jones & Company[©].

The sample includes all the articles published in the four selected newspapers where the term diet or diets appears in the headline of the information. The headline has been chosen as a reference element because, although the digital press has incorporated new accesses to information (texts, photographs, or figures), it continues to be the main informative element for the reader (Pou Amérigo, 2001). Likewise, the headline synthesizes the informative content and defines the orientation that the medium gives to the information included in the body of the news (Van Dijk, 1990). Thus, the sample obtained is more precise and refined.

We initially obtained 1,648 records that were subsequently filtered by health, an option provided by the Factiva[®] tool to achieve more precise results. Thus, it was possible to exclude information related to controversies about the per diems of political representatives, understood as fees fixed for their commissions (for which the term diet is used in Spanish). In this phase, 663 items were obtained. Subsequently, the contents were examined one by one to include only those that expressly mentioned diets in the context of nutrition. The coders eliminated from the sample those articles that were repetitions within the same media or that had divergent publication dates and a final sample of 643 records was obtained.

Based on the linguistic corpus, the semantic analysis on diets was carried out using the T-LAB Plus 2020 version software, a linguistic and graphic analysis program that also allows quantitative analysis based on statistically significant results. This system uses two types of factors to perform the textual analysis. On the one hand, the context units or elementary contexts (EC) are proportions of corpus text corresponding to syntagmatic units of one or more sentences, i.e., they are equivalent to fragments (paragraphs) of the different news items. This segmentation is performed automatically by the software. On the other hand, lexical units are classified records composed of two fields: word and lemma. The word field shows the words as they appear in the linguistic corpus. The lemma field contains the labels assigned to groups of lexical units classified according to linguistic criteria or by means of dictionaries and semantic templates defined for the research. The initial selection of lexical units is done automatically in the system itself. However, it is recommended to perform a manual classification and to elaborate a list consistent with the purpose of the study (Lancia, 2017).

This process is called lemmatization and consists of examining each lexical unit with the elementary contexts in which it is integrated so as to establish the changes in the automatic selection provided by the program. Two examples are given: the lexical unit diet includes the terms diet and diets. Both terms have been integrated in the lemma diet, since we have considered the frequency of repetition and diet appears in more occasions than diets. Similarly, the lexical unit carbohydrates groups the terms carbon hydrates and carbohydrates, although the lemma carbohydrates is used, since it is the term with the greatest quantitative presence in the corpus analyzed.

The initial automatic normalization provided by T-LAB provided 3,348 lexical units located in the first decile (10%), which have a minimum frequency threshold of 10 to guarantee the reliability of the statistical data. After performing the lemmatization process (classifying, renaming and relocating the available lexical units), 513 were identified (from here on and to clarify the exposition, the term lemma is used as equivalent to the term lexical unit). With these data, we conducted a word association analysis focused on the lemmas with the highest occurrence in the corpus, which allows us to determine the main domains addressed when referring to diets and eating patterns. This micro approach allows exploring, measuring, and mapping the concordance relationships between terms linked to diets (Lancia, 2017).

RESULTS

From the 513 lemmas identified, the textual analysis applied to the linguistic corpus provided the following quantitative characteristics in terms of elementary contexts:

- Analyzed elementary contexts: 11,330.
- Classified elementary contexts: 10,990 (97%).

Most frequent lemmas

Figure 1¹ shows the distribution frequency of the most frequent lemmas included in the linguistic corpus, taking as a cut-off point a minimum presence of 450 occurrences.

1. We have kept the original lemmas.

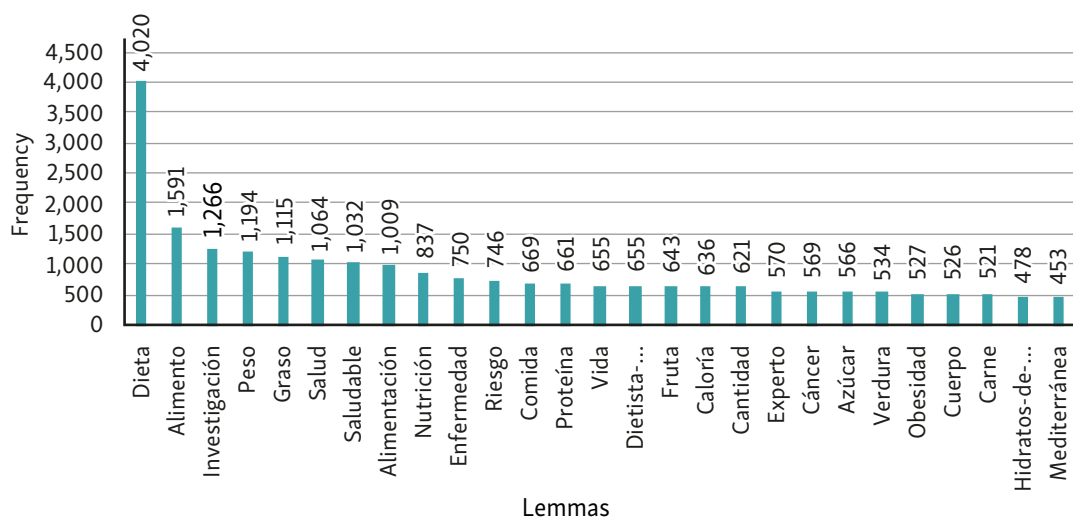


Figure 1. Most frequent lemmas

Source: Own elaboration.

The most frequently used lemmas are associated, fundamentally, with aspects related to nutrition and the scientific-health context:

- Nutrition: terms such as diet, food, weight, fatty, diet, nutrition, protein, fruit, calorie, sugar, vegetables, meat, carbohydrates, Mediterranean, plus other Spanish words that are translated as food and diets in English.
- Scientific-health field (research, health, healthy, disease, risk, dietitian-nutritionist, expert, cancer, obesity, patients, physician).

Thus, the media link news about diets with factors of social interest. The following are elementary contexts with the most frequently occurring lemmas in the information that make up the linguistic corpus under analysis.

The most important thing is to have at home foods such as fruits, vegetables, homemade soups or creams, lean meats (chicken or turkey), and fresh or frozen fish, but not processed.

Eating fiber-rich foods such as whole grains, legumes, fruits and vegetables increases satiety, contributes to the improvement of the microbiota and is beneficial to health.

Research provides further evidence of clinical benefits associated with weight-reduction diets, which have already been shown to prevent type 2 diabetes.

The Mediterranean diet as an ally against breast cancer. Scientific research leaves no doubt about the relationship between good nutrition and disease prevention.

Cooccurrence analysis. Word associations

The lexical units derived from the study make it possible to analyze the number of times two or more lemmas appear in identical elementary contexts. The relationship between lemmas can thus be examined. The radial diagram in figure 2 shows the relationship between the lemma diet and other lemmas with statistically significant cooccurrences (Chi² test, $p < 0.05$).

The lemmas closer to the center of the diagram show a higher level of cooccurrences, since each of them is located at a distance proportional to their degree of association. On the contrary, the B lemmas farther away from the A lemma analyzed show lower levels of cooccurrence. This diagram is quantitatively complemented by table 1, which shows the association of words with the diet lemma.

Thus, the relationship between the diet lemma with other lemmas or keywords with statistically significant cooccurrences (Chi² test, $p < 0.05$) is shown. The quantification of these relationships is represented according to the selected association coefficient (Coef; cosine coefficient), the cooccurrence values between lemma A and lemmas B (AB), the Chi² statistic and the p-value, showing only the statistically significant B lemmas ($p < 0.05$).

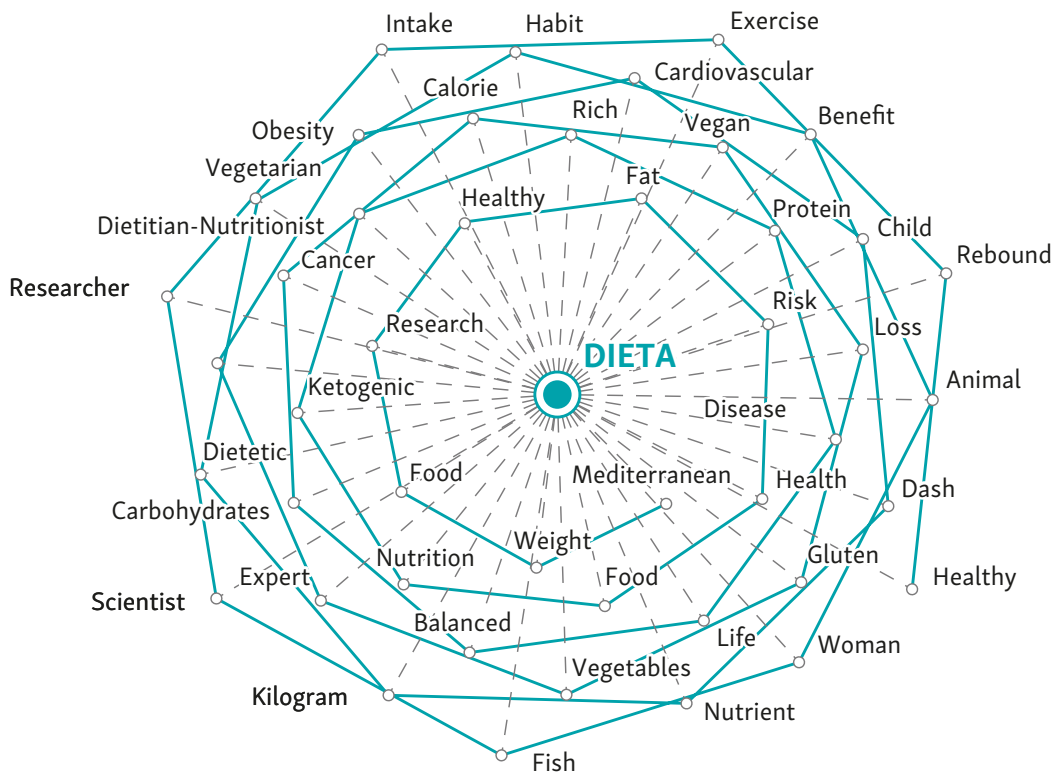


Figure 2. Radial diagram of associations of diet lemmas

Source: Own elaboration.

LEMMA_B	COEFF	CE_AB	CHI ²	p-value
Mediterranean	0.309	417	659.687	0.000
ketogenic	0.190	153	249.604	0.000
balanced	0.171	157	146.145	0.000
DASH	0.139	80	139.055	0.000
vegan	0.160	145	113.327	0.000
weight	0.265	580	99.979	0.000
risk	0.220	381	84.801	0.000
healthy	0.241	490	71.418	0.000
rich	0.179	241	67.604	0.000
vegetarian	0.134	112	65.699	0.000
rebound	0.120	80	65.564	0.000
research	0.255	575	61.486	0.000
gluten	0.156	181	50.413	0.000
loss	0.158	191	48.785	0.000
carbohydrate	0.171	237	43.345	0.000
healthy	0.120	103	34.327	0.000
benefit	0.132	133	32.345	0.000
food	0.262	663	30.989	0.000
animal	0.131	138	26.607	0.000
dietician-nutritionist	0.181	293	25.994	0.000
fatty	0.221	468	22.769	0.000
Feeding	0.212	427	22.625	0.000
nutrition	0.195	358	20.986	0.000
dietary	0.135	154	20.711	0.000
protein	0.175	286	18.592	0.000
woman	0.131	147	18.123	0.000
life	0.174	283	18.123	0.000
cancer	0.165	249	17.942	0.000
cardiovascular	0.142	179	17.655	0.000
health	0.212	439	17.128	0.000
child	0.142	184	13.821	0.000
kilogram	0.136	168	13.404	0.000
nutrient	0.139	178	12.563	0.000
vegetable	0.154	225	10.838	0.001
habit	0.134	169	9.797	0.002
disease	0.175	303	8.489	0.004
calorie	0.161	258	7.611	0.006
fish	0.126	152	7.381	0.007
expert	0.153	231	6.674	0.010
exercise	0.120	138	6.185	0.013
intake	0.121	142	5.830	0.016
meat	0.145	210	5.556	0.018
scientist	0.122	145	5.178	0.023
researcher	0.122	145	5.178	0.023
obesity	0.144	210	4.605	0.032

Coef: cosine coefficient used as the value of the association index.

CE_AB: cooccurrence in the elementary contexts of those A lemmas under analysis (diet) and their associated main B lemmas that are statistically significant ($p < 0.05$).

Chi²: statistic that helps to verify the significance of cooccurrences.

p-value: probability that the calculated Chi² statistic is possible given a true null hypothesis. The required significance value is set at $p < 0.05$.

Table 1. Analysis of word associations for lemma A (diet)

Source: Own elaboration.

Considering the Chi² statistic and p-value, among the first 10 lemmas with the highest level of statistical significance with respect to lemma A (diet), those referring to types of diet stand out: Mediterranean, ketogenic, DASH, vegan, and vegetarian. The rest of the lemmas are related to nutrients and types of food (gluten, carbohydrates, protein, fish, meat). Similarly, lemmas linked to health and weight control are included: balanced, weight, risk, healthy, rich (understood as the amount of nutrients in a food), rebound, loss, obesity, cancer, cardiovascular.

Since diets constitute the object of study, we proceeded to establish a cooccurrence analysis based on word associations for each of the five diets that appear among the first 10 lemmas. Thus, figures 3, 4, 5, 6 and 7 respectively show the relationship between the lemmas relating to the Mediterranean, ketogenic, DASH, vegan and vegetarian diets with other lemmas whose cooccurrence is statistically significant (Chi² test, $p < 0.05$).

Figure 3 shows that the lemmas with which Mediterranean is associated are linked to eating habits (diet, pattern), foods included in this diet (oil, fish, vegetables, legumes) and ailments that may be associated with poor nutrition (heart attack, cancer, tumor, hypertension). In the same way, we find lemmas such as research, scientist and researcher, which refer to studies conducted on this way of eating. Likewise, the presence of the lemmas pregnancy, woman, and breast is noteworthy, since they link the Mediterranean diet with this segment of the population.

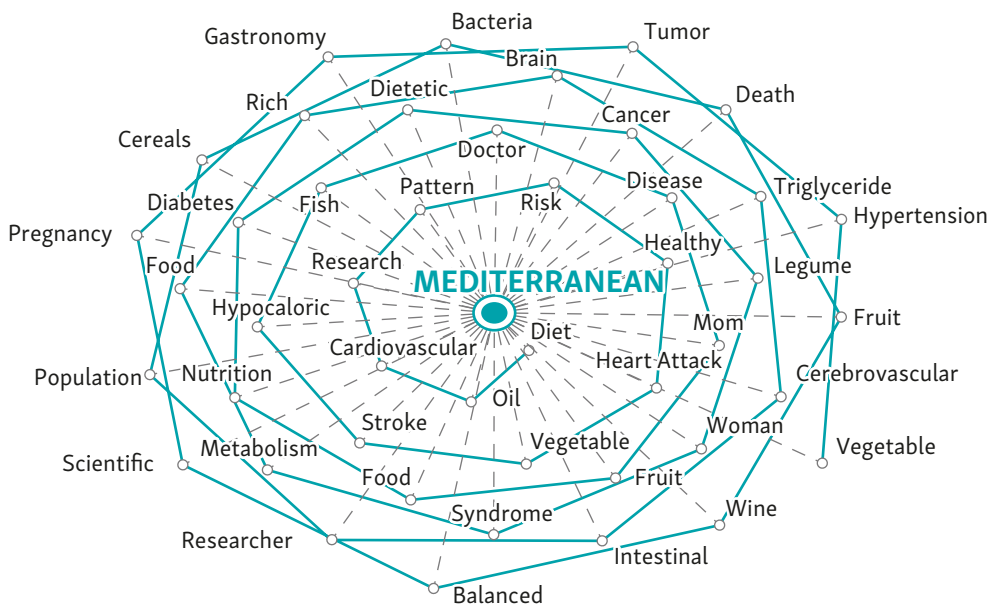


Figure 3. Radial diagram of lemma association for Mediterranean

Own elaboration.

There are several examples of elementary contexts that refer to the Mediterranean diet. It is shown that it is the type of diet that provides the greatest health benefits, as confirmed by the successive studies carried out on the subject.

Data from the Moli-sani study now show that a traditional Mediterranean diet, rich in fruits, vegetables, fish, legumes, olives, extra virgin olive oil, and cereals, low in red meat and dairy products and with a moderate consumption of wine during meals, is associated with a 25% reduction in all-cause mortality.

The Mediterranean diet reduces by 41% the risk of age-related macular degeneration (AMD), one of the main causes of blindness.

This is according to research published in the journal 'Ophthalmology', which suggests that a diet of this type, in which fish, vegetables, olive oil and legumes predominate, is beneficial for any age profile, whether with the disease or at risk of developing it.

These results coincide with the evidence demonstrated by Serra-Majem and Ortiz Andrellucchi (2018), where this type of diet is presented as a healthy model.

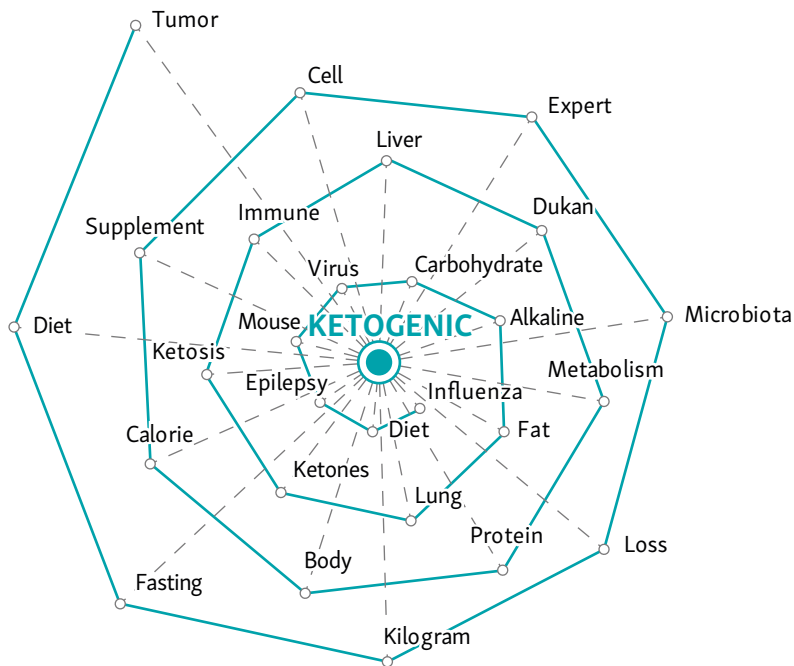


Figure 4. Radial diagram of lemma association for ketogenic

Source: Own elaboration.

The ketogenic or keto diet is a type of diet rich in fats and low in carbohydrates. This dietary pattern promotes the process of ketogenesis in the body, i.e., the body's fats are used as a source of energy. The design of this diet is based on the nutritional treatment of children with epilepsy, since the production of ketone bodies reduced seizures in these patients. Currently, it is trending in online channels (ModregoPardo et al., 2020) as a diet to lose weight significantly during the first six months of treatment (Bezerra et al., 2013).

The main lemmas with which ketogenic is associated in figure 4 are: flu, diet, epilepsy, mouse, virus and carbohydrates. Reference is made to the origin of the diet as part of the therapy in epileptic patients, but also to several studies that have shown a lower incidence of influenza virus in mice given this feeding regimen. Similarly, the rest of the lemmas are linked to the nutrients that make up the diet (in high or low quantity), and to the processes that it engenders in the organism.

On the other hand, the Dukan lemma stands out, a controversial version of the ketogenic diet that became popular from 2010 onwards and was soon after described as fraudulent and ineffective for weight loss, as well as risky for health. This assessment was made by the Spanish Association of Dietitians-Nutritionists in a document endorsed by the Ministry of Health, Social Services, and Equality (Basulto et al., 2011).

The Atkins diet, another version of the ketogenic diet that had many followers in the early years of the 21st century (Fúster et al., 2006), did not have a prominent presence during the period analyzed.

Below are some examples of elementary contexts that refer to the ketogenic diet.

A high-fat, low-carbohydrate diet such as the ketogenic diet -low in carbohydrates and high in fats- may be of great help in fighting the flu virus, although so far [these results are seen] on mice.

Nutritionists deem the Dukan diet 'illegal' and 'fraudulent'. The College of Dietitians and Nutritionists of the Valencian Community (Codinucova) estimates that protein diets, with which weight loss is achieved in a fast way, are a method that "lacks scientific rigor", is "fraudulent", "illegal", and "entails many health risks".

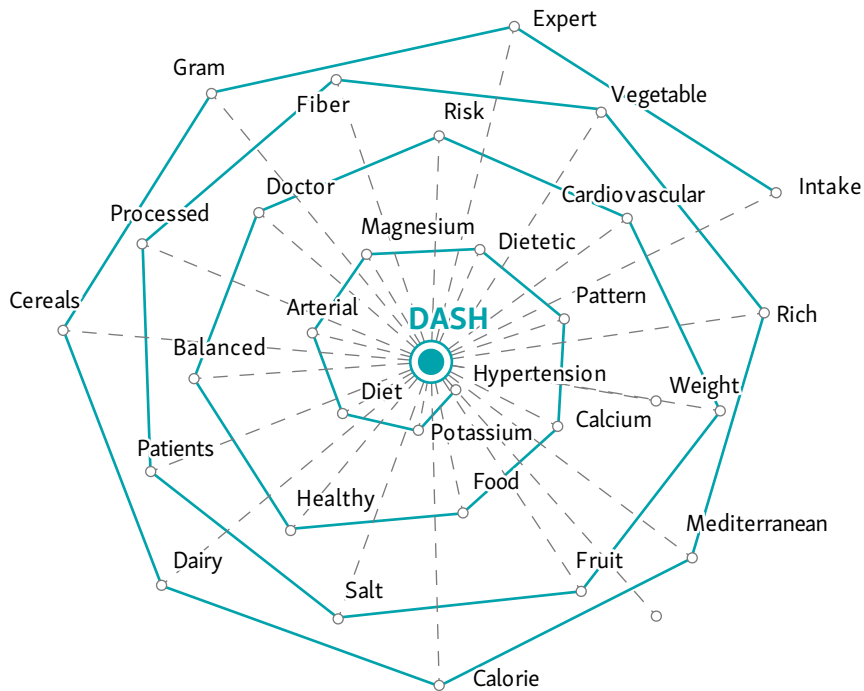


Figure 5. Radial diagram of lemma association for DASH

Source: Own elaboration.

The DASH diet is an acronym for the term Dietary Approaches to Stop Hypertension. As the name suggests, this dietary approach to stop hypertension is a type of diet developed to lower elevated blood pressure numbers. It is based on the consumption of nutrients such as protein, fiber, potassium, magnesium, and calcium. The foods it includes are fruits, vegetables, whole grains and low-fat dairy products and limits the consumption of red meat, given its high level of saturated fats. In addition to favoring the reduction of arterial hypertension, this diet is linked to a reduction in body weight, cholesterol levels, cardio metabolic risk, and incidence of type 2 diabetes mellitus (Apovian et al., 2018).

The main lemmas with which DASH is associated in figure 5 are hypertension, potassium, diet, arterial, and magnesium. Also included are lemmas about types of foods and nutrients that the diet incorporates and lemmas related to its results. Furthermore, it is observed that DASH is associated with the Mediterranean lemma. This is due to the fact that, to a large extent, the DASH diet closely resembles the Mediterranean diet and in the ranking of the best diets published each year by the US magazine *US News & World Reports* they compete among the top places during 2019 (Best Weight-Loss Diets, n.d.).

The following are some examples of elementary contexts that refer to the DASH diet.

Thus, this DASH diet is especially recommended for those people who need to reduce their cardiovascular risk and avoid a heart attack or stroke.

The DASH diet is based on the intake of fruits, vegetables, nuts, whole grains, poultry, fish and low-fat dairy products, and a reduction in the consumption of salt, red meat, sweets and sugary beverages.

In recent years the DASH diet led the rankings from 2013 through 2018, although in the last two years, 2019 and 2020, the DASH diet was dethroned by the Mediterranean diet.

Vegetarian and vegan diets have gained popularity in recent years, since they may constitute an advisable dietary pattern for patients with type 2 diabetes mellitus and are linked to ethical, environmental and cultural beliefs (Quintero et al., 2021). They are characterized by abstaining from the consumption of animal protein and its derivatives, although there are different types. Depending on their categorization (lacto-vegetarian, ovo-vegetarian, or pescetarian), vegetarian diets may include dairy, eggs, or fish. On the other hand, the vegan diet totally excludes foods of animal origin and their derivatives (Quintero et al., 2021).

Figure 6 shows that the lemmas linked to veganism refer to the nutrients included in this diet and to the foods it excludes. However, the association with the lemmas parents, child and risk is relevant. This is due to the fact that various sources of information mention the negative effects that a vegan diet can have on child development. In the same way, the lemma chemotherapy stands out for the presence of news about the refusal of patients to receive oncological treatment and replace it with a strict vegan diet. In this regard, it is observed that the publications on this type of diet oscillate between the benefits it brings to health according to various investigations and the dangers it poses for certain segments of the population or patients with certain diseases. It can be seen that the term vegetarian is also linked to vegan, an aspect that is explained by the great similarity between the two diets.

As in the previous case, figure 7 shows that the vegetarian lemma is mainly associated with lemmas related to nutrients and foods that are included or excluded in this pattern (B12, vitamin, vegetable, egg, dairy, animal, fish), specific segments of the population (adolescent, child, pediatrician) and ailments (cholesterol).

Below are examples of elementary contexts with lemmas referring to vegan and vegetarian diets.

A vegetarian or vegan diet, like any other type of diet, must be well planned. “The increase in the number of vegetarian families in our country should motivate pediatricians to be aware of the main characteristics and the composition of the most common foods of these diets”, explains Dr. Moreno Villares.

Studies on vegetarian children and adolescents show that their growth and development is within the normal range, although there is a tendency to have a lower body mass index. A poorly planned vegetarian diet, like any other type of unbalanced diet, can have negative consequences on health and growth.

The youtuber who claimed that her vegan diet had cured her cancer has died precisely because of this disease. Mari López had a YouTube channel that she managed from her home in Texas with her niece, Liz Johnson.

The data suggest that the press narrative when referring to diets is mainly related to the health benefits provided by certain eating patterns. This is the case of the Mediterranean and DASH diets, which can reduce cardiovascular risks, control diabetes, or curb hypertension. However, in reference to ketogenic, vegan and vegetarian diets, a warning is raised about the harmful effects they can have on health –as a consequence of the lack of nutrients– if they are poorly planned, although the benefits they entail, such as the reduction of the risk of coronary heart disease, are also emphasized. It is also stressed that these diets are followed by celebrities, although later mention is made of the need to make them subject to medical control.

CONCLUSIONS

From the beginning of the 21st century, there has been a significant increase in social interest in areas related to nutrition, which is reflected in the media. Since the implementation of the NAOS (Nutrition, Physical Activity and Obesity Prevention) strategy in 2005, and its reinforcement with Law 17/2011, the media have been actively involved in the creation of public opinion on food issues, as can be seen in the CIS barometer data on food (Centro de Investigaciones Sociológicas, 2006).

While in 2006 the news about diets were linked to the Mediterranean pattern and eating patterns aimed at easy weight loss, during the last decade the focus has been similar, but with certain nuances.

The Mediterranean diet continues to be the most frequently mentioned nutritional pattern. The news reports the benefits of this diet based on current

and rigorous studies. It is not linked to aspects such as obesity, but it is related to numerous ailments that it can reduce or prevent. Likewise, it is noted that its characteristics are defined, mentioning the foods it should incorporate. Olive oil continues to be the lemma most frequently associated with the Mediterranean diet, as García Lucio (2015) pointed out, although it does not focus solely on this product and an attempt is made to demystify erroneous beliefs. In this regard, it is observed that information has shifted to scientific contexts that link this diet with a balanced and healthy lifestyle. Similar appreciations can be applied to the news about the DASH diet.

Regarding the ketogenic, vegetarian, and vegan diets, there are numerous news reports that echo the results derived from research on their benefits. They usually have a sensationalist language, meaning that the publications make references to promising but incipient results on possible applications of these dietary patterns and that they have only worked in an experimental stage in animals. Also noteworthy are the references to the popularity of these diets among celebrities and the benefits they bring them, although they always include the dangers that may arise if they are not controlled by an expert.

With regard to the ketogenic diet, different very controversial versions, always linked to celebrities, have become topical in different periods. Thus, in the early years of the 21st century, the Atkins diet was prominent; a decade earlier, the Dukan diet promised weight loss without effort. Today, the ketogenic or keto diet continues to gain followers.

As far as vegetarian and vegan diets are concerned, there are news reports that fuel the controversy about their relevance. This information arises from tragic news about women who have renounced medical treatments to cure their ailments and have replaced them with these diets. In the same way, fatal events about vegan food in children are the engine that serves the media to alert about the need to have the follow-up of an accredited expert when adhering to such a diet, beyond the fact that it is a fad and word-of-mouth works.

On the other hand, the term ultra-processed foods, which is not exempt from controversy due to its harmful effects on health, hardly experiences media relevance when associated with diets, so it could be approached from a specific analysis. In this regard, its possible association with the slow food vs. fast food trend would be relevant.

Based on the semantic analysis, three future lines of research are suggested: firstly, it is observed that information on gluten-free or lactose-free products does not have a decisive presence. Therefore, the study and classification in digital

media and social networks of these types of food would be projected to assess their impact on eating habits and the cost of the shopping cart. Likewise, the aim would be to identify whether the ecological, organic and healthy living trend responds to a fashion pattern or has been consolidated. A final line suggested would be the study of user profiles and their relationship with media consumption through consumer surveys and the Sociological Research Center.

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