

The effects of advertisements on consumer choices and health: a content analysis of health claims in Italian magazines

Health claims
in Italian
magazines

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Received 5 August 2020
Revised 10 November 2020
Accepted 8 December 2020

Abstract

Purpose – The purpose of this research is to trace the evolution of the claims used for advertising food products in Italian magazines, by analysing the content and structure of the claims, the target audiences and the elements that have the greatest influence on the presence of the claims in food advertising.

Design/methodology/approach – On the basis of the research conducted by Pratt and Pratt (1995), revised and adapted to the Italian food context, the authors designed a matrix of 1,316 advertisements, which were selected based on the analysis of 67,340 advertisements and using the reference to the food sector as a discriminator. The advertisements were extrapolated from a sample of six Italian magazines, so as to determine the extent to which the various demographic groups in Italy are exposed to print advertising for food, beverages and food supplements. The authors examined the frequency of the relevant advertising forms over a period of four years, from January 2014 to December 2017.

Findings – The results revealed the main types of claims used in the four-year period, as well as the statistically significant differences between the different magazine panels, as concerns the frequency and the types of messages. Moreover, a strong relationship between the number of advertisements in the magazines and the time of the year was also ascertained, as well as significant gender variations.

Originality/value – This study introduces the trends and dynamics of the Italian printed advertising for food to the relevant scientific literature. The results yielded by this research have added further implications and contributions to the existing studies, as concerns claim diffusion based on type, gender and seasonality, and the authors also provide important insights to various socio-economical stakeholders.

Keywords Food advertising, Claims, Magazines, Food marketing

Paper type Research paper

1. Introduction

In recent years, given the ever more specific demand for healthy and balanced diets, consumers bought more and more food products that are able to satisfy the health-and-well-being duo (Anastasiou *et al.*, 2019; Campos *et al.*, 2011; Cecchini and Warin, 2016; Kerr *et al.*, 2015). Consequently, food advertisements became richer in information aimed at satisfying these requirements, and the use of claims became increasingly more frequent. Art. 2, par. 2 of the Regulation (EC) 1924/2006 mentions that “Claim means any message or representation,



which is not mandatory under Community or national legislation, including pictorial, graphic or symbolic representation, in any form, which states, suggests or implies that a food has particular characteristics". It is precisely this regulation that introduces and clarifies the usage and display requirements for the health and nutrition information to be shown on food products, providing a detailed description of what, how and under what conditions said information should be disclosed to the consumers. The changes in consumption trends and the recent regulation developments have had a profound influence on the communication and marketing models developed by manufacturing companies, the health and nutrition information that is displayed directly on the product packaging, in televised commercials and in print advertising being thoroughly revised. It is worth noting that a study by [Livingstone and Helsper \(2004\)](#) shows that amongst the factors that influence food habits, advertising plays a key role and the food sector is the one that invests the most in advertising tools, as shown by numerous reports ([Nielsen, 2018](#); [O'Dowd, 2017](#); [Statista, 2019](#); [Yale Rudd Center, 2014](#)). In Italy too, advertising expenditure in the food and beverage sector amounts to almost 20% of the total, followed at a considerable distance by the automotive sector (11.5%). Television remains the predominant advertising channel, accounting for more than half of the total, while periodicals remain stable in terms of investments, with an overall quota of 6.8% out of the total ([Nielsen, 2018](#)). Similar investment levels and proportions were registered in other European countries and worldwide ([Abrahams *et al.*, 2016](#)). Certain studies dive deeper into the communication models and the claims that accompany food and beverage advertisements (insert bibliographical references or delete). The present study sets the objective of analysing the typology of food advertising in Italian magazines based on the methodological approach designed by [Pratt and Pratt \(1995\)](#). The objective of the present study is twofold: first and foremost, to analyse the evolution of food advertising with particular reference to the use of claims, and second, to identify the main differences and significant data related to the types of claims, to gender and to seasonality, by analysing the frequency and content of the advertisements for food products, beverages and food supplements published in six Italian monthly magazines that appeared between January 2014 and December 2017.

2. Literature review

Food consumption changed over the past 50 years. Today there are more overweight and obese people in the world than there are underweight or malnourished ([Popkin, 2006](#)). In many countries, there is a double burden of undernutrition (from diets that are deficient in energy, micronutrients or both) and overnutrition (energy-dense nutrient-poor diets leading to obesity) ([Kearney, 2010](#)). Many changes in food consumption patterns are reflective of the nutrition transition, a series of adverse changes in diet, physical activity and health. Food consumption is variably affected by a whole range of factors including food availability, food accessibility and food choice, which in turn may be influenced by geography, demography, disposable income, socio-economic status (SES), urbanization, globalization, marketing, religion, culture and consumer attitudes ([Kearney, 2010](#)). New diets, allergies and food trends have increased the consumers' need for information regarding food products. Indeed, consumers are becoming increasingly aware of health and safety aspects of the food and food products they purchase ([Wognum and Bremmers, 2009](#)). Consumer awareness refers to the consumer's knowledge about a particular product. This knowledge allows the consumer to make better, well-informed choices based on information they find trustworthy ([Van Trijp and Van der Lans, 2007](#)). Consumer behaviour is not only influenced by the information the consumer has about a certain food product but also by the health image of a food product. The consumer's decision to buy and eat a food product is influenced by many factors and different communication approaches have emerged based on the target audience

(Pratt and Pratt, 1995). From Nineteens communication, strategies are faced with several challenges, ranging from the heterogeneity of the audience to the consumers demanding certainty and a straightforward message, to the different aims and agendas of the communicators and to the inherent complexity of the scientific message (Celemin and Jung, 2006). Consequently, the number of food products and food products with claims that inform consumers of their health benefits and main features is vastly increasing. Food advertisers use several different advertising claims to express the various benefits of food products, ranging from the convenience of consumption to discount opportunities to claims that emphasize great taste and rich flavours (Fay, 2003). More recently, it has become quite popular amongst food marketers to advertise the health- and nutrition-related benefits as these two issues have become major factors in consumers' food choices (Cervellon and Laurette, 2000; Ippolito and Pappalardo, 2002; Warner, 2006). Food advertisers have adopted various claims to convey product information. Previous studies noted that more than half of the food advertisements contained claims about delicious taste (Ippolito and Pappalardo, 2002; Kim *et al.*, 2009). Due to the accelerated speed of life, food advertising started emphasizing the availability of convenience food products (Chandon and Wansink, 2012; Ippolito and Pappalardo, 2002; Kim *et al.*, 2009) or a new food product (Ippolito and Pappalardo, 2002). Some common food advertising claims highlighted the relative economy of the food product by providing coupon information, for instance (Ippolito and Pappalardo, 2002; Kim *et al.*, 2009), and the idea of enjoying food with family (Cheong *et al.*, 2010). Moreover, with increasing food safety concerns, food brands endeavoured to create a high-quality image for their products (Burkitt, 2012). For example, Byrd-Bredbenner and Grasso (2001) and Parker (2003) focussed on the usage of nutrition and health claims in television and magazine advertisements up to 1998 and 2000, respectively. Similarly, Ippolito and Pappalardo (2002) examined advertisements taken from a sample of eight leading magazines between 1977 and 1997, and they observed that the use of different advertising claims appeared to be associated to changes in regulations. They also focussed solely on nutrition- and health-related claims. The research by Nocella and Kennedy (2012) examines factors related to the personal characteristics of individuals such as socio-demographic status, knowledge and attitudes and factors pertaining to food and food supplement products, such as the wording of the claims and the communication of the strength and consistency of the scientific evidence. The research on the effects of food claims has concluded that consumers' evaluations of food items are more favourable when claims are presented (Kozup *et al.*, 2003). Other studies demonstrated that consumers tend to rate products more positively and exhibit higher purchasing intention when favourable nutritional information is presented on packaged food labels (Roe *et al.*, 1999; Wansink's, 2003). So food claims are key channels of communication between manufacturers and consumers of packaged food products, and therefore, claims may influence purchase or consumption behaviour, their effect being augmented in the case of less educated consumers. Advertising has always been a crucial marketing tool for the food industry. Food advertising may have an impact on food choices. International evidence suggests that in addition to a number of well-known factors (ethnicity and culture, price, taste, availability, perceived status, food quality, safety and ethical claims, nutritional and health value), food-related advertising seems to be an important factor in people's decision to purchase certain food products (Abrahams *et al.*, 2016). It can help to improve the reputation and sales of a product. Food advertising is an example of an external force designed to influence the outcome of food choice that could influence the market choices. For this reason, many researchers analysed the claims used in food advertising in print media, online and on television. Some studies investigated the information on characterized frequency and type of health and nutrient content claims (Abbatangelo-Gray *et al.*, 2008). Xiaoli *et al.* (2013) report a content analysis of health- and nutrition-related claims used in food advertisements in popular women's and men's magazines and highlight that the use of

health- and nutrition-related claims varies across different food groups and types of magazines. Over the years, there have been many studies dedicated to claim analysis; researchers have studied many factors, such as gender, season and others issues that can impact claim efficacy (Adams *et al.*, 2011; Xiaoli *et al.*, 2013). Many researchers analysed the effects of seasons on food advertising. For instance, a study by Adams *et al.* (2011) reveals that food advertisements were most prevalent in summer, in general interest magazines and in magazines for the most affluent tertile, and least prevalent in spring and in magazines for the least affluent tertile (Adams *et al.*, 2011). Other research shows that some of the variations in food advertising seen across seasons may reflect social and cultural events associated with those seasons. For example, advertisements for alcohol were most prevalent in winter, presumably reflecting the impact of Christmas and New Year festivities, when alcohol consumption tends to peak (Adams *et al.*, 2011; Cho *et al.*, 2001). A study of British women's monthly magazines of the time period 2008/2009 found that food advertising was more prevalent in magazines with an affluent readership and over the summer months, while alcohol advertising peaked over the Christmas period (Spencer *et al.*, 2013). Nevertheless, seasonal variations in food and weight loss messages were particularly strong: excessive eating prevailed in the run-up to Christmas, healthy eating and a more reasonable food pattern was advocated in the months following the New Year, while dieting was dominant in the summer (Spencer *et al.*, 2013). Gender is another item that emerged as "a driver" in food advertising. Differences in gender depiction of gender nonetheless emerge both between magazine types and for all advertising examined (Massè and Rosenblum, 1988). Food advertising in magazines read by women is largely unaffected by the impact on public health of the implementation of current dietary guidelines, as such advertising tends to promote food products of questionable nutritional or health value (Lohmann and Kant, 2000). Various studies of food and beverage marketing in women's magazines have shown that food advertising is dominated by convenience food products, food products high in fat and/or refined sugar and alcoholic beverages, with a widespread lack of advertising of fruits and vegetables (Spencer *et al.*, 2013).

2.1 Methodological framework

The methodological framework developed for our investigation is based on a content analysis aimed at identifying the relevant promotional messages in print and at analysing their characteristics. Starting from the aforementioned definition of claims, taken from Reg. 1924/2006 CE referenced above, we referred our analysis to the following three types of claims:

- (1) Nutritional claims;
- (2) Health claims;
- (3) Claims pertaining to the reduction of illness risks.

According to the approach developed by Pratt and Pratt (1995), content analysis was applied to the food advertisements appearing in six Italian magazines. The first phase of the content analysis consisted of the codification of the promotional messages in order to create a specific database, according to the advertisement classification methodology used by Barr (1989), with the necessary adjustments to the Italian food context (for instance, the introduction of the "pasta" category in the "bread and cereals" category). The classification of the messages followed three phases. The first phase was reserved to identifying the frequency with which advertisements and food products, beverages and food integrators were featured in the magazine panel in question. This allowed us to eliminate the messages that were in no way related to the variable food, beverage or nutrition issues. In the second phase, the

advertisements were divided into 12 product categories, re-elaborated based on the nutritional affinities comprised in the 1995 Pratt and Pratt model, adjusted to reflect the developments of the recent years and the Italian context (Tables 1 and 2).

In the third phase, the nutrition- and health-related messages used for the promotion of the products were divided into six categories: (1) related to general health and nutrition; (2) contain specific nutrients; (3) minimize/eliminate certain substances; (4) consumer related; (5) for weight control and (6) miscellaneous.

Within each of these categories, there are composite claims and promotional messages, given that, for instance, the advertisements that emphasize the low content of certain substances may refer to sugar, calories or fats.

The “General health and nutrition” claim emphasizes the health benefits coming from the use of certain types of products or certain nutrients in that particular product but does not specify the actual illnesses that can be cured or the conditions under which one can benefit from it. In any case the claim remains rather generic, and it often reports doctor recommendations. When the aspect that is emphasized is the presence of specific nutrients in

Product category	Example
Milk and dairy products	Milk, cheese, yogurt and other
Bread, cereals and pasta	Bread, flour, cereal, rice, pasta, snack and other
Vegetables	Fresh, frozen, canned and other
Fruits	Fresh, frozen, canned juice and other
Protein-rich foods	Meat, fish, eggs, nuts, soy and other
Beverages non-alcoholic	Bottle water, tea, coffee and other
Beverages alcoholic	Alcoholic drinks
Desserts/food high in fat or sugar	Cakes and cake mix, dessert mix, cookies, ice cream, chocolate, honey and other
Ingredients and condiments	Sauce, pickle, salt and other
Miscellaneous	Infant foods, frozen foods, prepared meals and other
Dietary supplement	Weight loss supplement, energy bars, whey bars and other

Source(s): Our elaboration on Pratt and Pratt (1995)

Table 1.
Product category

Promotional statement	Claim
General health and nutrition	Good for general health Health professionals recommend/prevents illness Easily digested
Contain specific nutrients	Contain vitamins/minerals Protein-rich food High in fibres
Minimizes/eliminates certain substances	Natural or pure Low calories/lean Sugar free
Consumer related	Low in fat Taste/smell Convenient/quick High-quality goodness
For weight control	Weight control
Miscellaneous	Miscellaneous

Source(s): Our elaboration on Pratt and Pratt (1995)

Table 2.
Promotional statement
and claim

the product, the claim falls in the category: “Contains specific nutrients”. This includes various subcategories based on the vitamins, minerals, fibres, carbohydrates and other elements that the product is rich in. The group of products that are advertised as having a minimum level of certain substances or are entirely substance-free falls under “Minimizes/eliminates certain substances”; this comprises the products presented as having a low content of calories, sugars or fats, the products that are sugar-free or that are pure/natural because they are sold more or less as they are found in nature. Then there is the group “Consumer related”, where the product is praised for its taste/aroma, for convenience/speed, for high quality, for being homemade or new, economic or energizing. The advertisements that specify the calorie content are classified as “For weight-control” claims and in general, the packaging mentions the calorie intake or features the phrase “Low calorie content”. The last category, “Miscellaneous”, includes all the ready-made products or the processed food products that do not belong in any of the other groups. In fact, this category was specifically created to contain all the claims that appear only marginally and sporadically in food advertising, so much so that they constitute a residual category compared to the total number of the messages that were analysed.

Following this scheme, a database was created to include all the advertisements present in our magazine sample, classified according to the categories described above. After the advertisements were collected, the data were processed to determine frequency and the variations registered over the four-year period, depending on gender and season, as well as other statistical information; this allowed us to arrive at a number of conclusions.

The research questions that the study raised were the following:

- RQ1. What type of food products, beverages or food supplements were advertised in the six magazines?
- RQ2. What was the frequency distribution of the different modes in which food was advertised, and what were the promotional statements regarding food products, beverages and supplements that were used in the magazines?
- RQ3. What were the trends and differences between magazines based on audience gender, season and time span?
- RQ4. Is there a correspondence between gender, seasonality and claim typology?

3. Sample and methods

The claim sample was constituted by analysing the advertisements that appeared in six magazines selected on the basis of readership indexes and reference targets. The readership indexes were extrapolated from the data offered by Audipress, while the reference targets are as follows: two magazines directly dedicated to a general target (*Focus* and *OK Salute e Benessere*), two dedicated to women (*Cosmopolitan* and *Starbene*) and two dedicated to men (*For Men* and *Men's Health*) (see [Table 3](#) for the details about the magazines' diffusion).

The survey period was of four years, from January 2014 to December 2017, in order to identify any changes in advertising messages during the period.

While we were carrying out the research, the magazine *Starbene* went from being a monthly publication to a weekly one, their number of yearly issues increasing accordingly. In order to avoid distorting the statistic sample, we decided to only analyse the first issue of every month and to omit the following three, after having properly ascertained that the total number of food-related messages had remained relatively stable. This allowed us to continue our research until the end of 2017 without affecting the validity of the statistic sample.

Type	Name of magazine	N° of copies sold for issues (January 2014)	N° of copies sold for issues (January 2015)	N° of copies sold for issues (January 2016)	N° of copies sold for issues (January 2017)
General target	<i>Focus</i>	369.794	372.770	307.259	299.850
	<i>Ok Salute e Benessere</i>	121.450	121.469	112.180	94.600
	<i>Cosmopolitan</i>	232.974	170.576	138.114	124.765
Women	<i>Starbene</i>	141.766	*	*	*
	<i>For Men Magazine</i>	84.000	72.057	76.577	61.100
Men	<i>Men's Health</i>	*	40.000**	*	*

Source(s): Agenzia Diffusione Stampa website <http://www.adsnotizie.it/> Consulted on 15/07/2019

* Data not available

** Data provided by the editors of the publishing houses

Table 3.
Magazines by type and diffusion (source 2019)

The selection of the magazines was done after a manual analysis of those with the highest content of messages specifically dedicated to food, with the exclusion of those that are strictly dedicated to cooking and recipes. The coding process was managed by several people in order to insure the comparability of the results obtained; a sample of coded items was selected, coded by a third person and the results were compared. A random sample of items (approximately 10%) selected from each coder's portion was then recoded by a second coder. Intercoder reliability was assessed with Krippendorff's α , using a bootstrap method (Hayes and Krippendorff, 2007). The survey period was of four years, from January 2014 to December 2017, in order to identify any changes in advertising messages during that period. The resulting data set is a matrix of 1,316 advertisements with 11 variables (product, product category, type of food promotional statement, claim, magazine, month, season [by semester], season, food supplements, year, target), representing about 15% of all the advertisements in the selected magazines.

The matrix of collected data was then processed using SAS 9.4 software (the "OnDemand for Academics" version), yielding both a descriptive analysis and a multidimensional analysis. Cross tabulations (Proc FREQ) were also conducted between two or three variables, so as to test the significance of their association by means of chi-square statistics. In order to obtain a multidimensional description of the data set, a correspondence analysis was conducted (Proc CORRESP) (Greenacre, 1994; Lebart *et al.*, 1984).

4. Results

4.1 The most advertised products and their categories

The analysis of the six magazines showed that there was substantial stability over the period covered by the research in terms of the number of advertisements dedicated to food products (see Table 4).

The only registered variation was the 35% decrease in food advertisements in 2016 compared to the previous year, a drop that was quickly recovered in 2017, which proves that the industry has a constant interest in this type of advertising.

The magazines are different from each other in terms of the number of messages they contain. The largest contribution was that of *Starbene*, a magazine that published 33.5% of all the food advertisements in the six magazines, their advertisements being dedicated to the topics of health, well-being and nutrition. The other magazines that made important contributions were *For Men* and *OK Salute e Benessere*, accounting for 23 and 21% of the

Year	Magazine						% Total
	<i>Starbene</i>	<i>For Men</i>	<i>OK Salute</i>	<i>Focus</i>	<i>Men's Health</i>	<i>Cosmopolitan</i>	
2014	129	95	100	39	21	2	386
	33.42	24.61	25.91	10.10	5.44	0.52	
	29.32	31.77	36.90	21.79	19.44	10.53	
2015	177	55	51	40	33	5	361
	49.03	15.24	14.13	11.08	9.14	1.39	
	40.23	18.39	18.82	22.35	30.56	26.32	
2016	63	46	48	46	31	0	234
	26.92	19.66	20.51	19.66	13.25	0.00	
	14.32	15.38	17.71	25.70	28.70	0.00	
2017	71	103	72	54	23	12	335
	21.19	30.75	21.49	16.12	6.87	3.58	
	16.14	34.45	26.57	30.17	21.30	63.16	
Total	440	299	271	179	108	19	1,316
	33.43%	22.72%	20.59%	13.16%	8.2%	1.44%	100%

Table 4.
Magazine by year

Note(s): Sample size = 1,316

advertisements, respectively. The number of food advertisements published in *Men's Health* and *Cosmopolitan* is negligible, with 8.20 and 1.44%, respectively.

Of the six publications, two showed an oscillating pace in the promotion of food products and beverages: *For Men* and *OK Salute* registered a decrease in food advertisements in 2015 and 2016, but in 2017, the frequency of this type of advertising increased. In both cases, although the respective publications have different targets, the year 2016 marked the reduction of food and beverage insertions by almost half, while 2017 marked a strong recovery which, in the case of *For Men*, actually surpassed the initial level of 2014. Some variations were also recorded in the case of *Men's Health*, although its evolution is opposed to that of the previously mentioned magazines. The data concerning food advertisements increased in 2015 and 2016, a trend which is opposed to *OK Salute* and *For Men*. A certain variation was also registered by *Starbene*, which shows a high volume of food advertising in 2015, followed by a steep decline in 2016 and a slight recovery in 2017. This evolution may be related to corporate communication strategies. Corporations periodically change their communication instruments in order to reach specific consumer target groups. However, *Focus* and *Cosmopolitan* published steadily increasing numbers of food and beverage advertisements, although the numbers in themselves are less consequent than in the case of the other magazines. The variation registered in 2016–2017 followed the national evolution of print advertising expenditure, which decreased in 2017 by 6%, with different variation ratios for some sectors; for instance, food advertising decreased by 3%. On the whole, there is a statistically significant association between the magazines and the years taken into consideration (chi-square = 118.25; df = 15; $p < 0.0001$).

Analysing the distribution of advertisements by product category (see [Table 5](#)), there are significant differences between the years and different degrees of incidence on the total (chi-square = 70.46; df = 11; $p < 0.0001$). Some of the most advertised products are dietary supplements, representing about 38% of all the advertisements (511 messages out of 1,316), even though there is a progressive decline from 2014 to 2017 (–56.5%). Out of the total number of dietary product advertisements, around 26.5% were featured in *For Men*, while another 27% appeared in *OK Salute e Benessere*. The latter published the most supplement and dietary product advertisements in 2014 and 2015, a trend which decreased over the following years. A different case is that of *For Men*, which published many advertisements from this category in 2014 and again in 2017, as if there were a renewed interest on the part of

Product_category	2014	2015	2016	2017	Total	Health claims in Italian magazines
Dietary supplement suggested for alimentary supplement diets	174	134	92	111	511	
	34.05	26.22	18.00	21.72		
Beverages non-alcoholic	45.08	37.12	39.32	33.13	200	
	55	67	41	37		
	27.50	33.50	20.50	18.50		
Milk and dairy products	14.25	18.56	17.52	11.04	119	
	25	40	27	27		
	21.01	33.61	22.69	22.69		
	6.48	11.08	11.54	8.06		
Miscellaneous	15	26	25	25	91	
	16.48	28.57	27.47	27.47		
	3.89	7.20	10.68	7.46		
Bread, cereals and pasta	26	32	12	12	82	
	31.71	39.02	14.63	14.63		
	6.74	8.86	5.13	3.58		
Desserts/foods high in fat or sugar	21	6	10	30	67	
	31.34	8.96	14.93	44.78		
	5.44	1.66	4.27	8.96		
Ingredients and condiments	26	17	4	12	59	
	44.07	28.81	6.78	20.34		
	6.74	4.71	1.71	3.58		
Protein-rich food	23	14	12	10	59	
	38.98	23.73	20.34	16.95		
	5.96	3.88	5.13	2.99		
Beverages alcoholic	7	12	2	35	56	
	12.50	21.43	3.57	62.50		
	1.81	3.32	0.85	10.45		
Vegetables	7	11	3	22	43	
	16.28	25.58	6.98	51.16		
	1.81	3.05	1.28	6.57		
Fruits	7	2	6	14	29	
	24.14	6.90	20.69	48.28		
	1.81	0.55	2.56	4.18		
Total	386	361	234	335	1,316	

Note(s): Sample size = 1,316

Table 5.
Product category
by year

the readers. With notably smaller, yet significant numbers, we must also note the strong contribution of the advertisements aimed at the promotion of non-alcoholic drinks (15.2%) and milk and dairy products (9.0%). The presence of these products in the magazines that we analysed grew significantly in 2015 and then decreased in the last two years of the period under consideration. A little less than half of the non-alcoholic beverage advertisements were published in *Starbene*, especially in 2015 and only occasionally in 2017. Milk and dairy products were also mainly advertised in health-oriented magazines (*Starbene* and *OK Salute e Benessere*) and are only rarely advertised in the other four magazines. The advertising space dedicated to bread and pasta strongly decreased, with a variation of more than 50% between 2014 and 2017. 2017 marked a steep increase in advertisements for products such as desserts and alcoholic drinks, which, in the overall analysis, have a comparatively small incidence on the total (5 and 4%, respectively), but their contribution was larger in 2017, namely 20% for desserts and 17% for alcoholic drinks. The advertisements dedicated to single ingredients also registered a sharp decrease, like protein-rich food, the presence of which dropped to half between 2014 and 2017.

Various studies confirm that, as far as food advertising is concerned, the seasonal factor is one of the most impactful, together with the reference target (Adams *et al.*, 2011). In Table 6, we analysed product categories by season. For more clarity, the seasons were grouped together as fall–winter and spring–summer. It is immediately obvious how the frequency of the advertisements for different product categories mirrors the season; for instance, ice cream is advertised much more in spring–summer and alcoholic beverages in fall–winter. As a confirmation thereof, our data regarding food supplements show that 63% of the advertising for this kind of product is published in the spring–summer season. On the other hand, as shown above, the cold season is the ideal period to promote alcoholic beverages. In total, 78% of the advertisements that promote drinks such as wine, beer, champagne, etc. are featured in magazines published in the fall–winter months, while 54% of dairy and milk advertisements also appear during the cold season.

Similarly to seasonality, gender too is one of the factors that have the greatest influence on advertising, a tendency confirmed by British studies (Adams and Whit, 2011). As early as the

Product_category Frequency Pct Riga Pct col	Season		Total
	Summer/spring	Fall/winter	
Dietary supplement	322 63.01 47.08	189 36.99 29.91	511
Beverages non-alcoholic	102 51.00 14.91	98 49.00 15.51	200
Milk and dairy products	54 45.38 7.89	65 54.62 10.28	119
Miscellaneous	38 41.76 5.56	53 58.24 8.39	91
Bread, cereals and pasta	45 54.88 6.58	37 45.12 5.85	82
Desserts/foods high in fat or sugar	30 44.78 4.39	37 55.22 5.85	67
Ingredients and condiments	23 38.98 3.36	36 61.02 5.70	59
Protein-rich food	30 50.85 4.39	29 49.15 4.59	59
Beverages alcoholic	12 21.43 1.75	44 78.57 6.96	56
Vegetables	14 32.56 2.05	29 67.44 4.59	43
Fruits	14 48.28 2.05	15 51.72 2.37	29
Total	684	632	1,316

Table 6.
Product category by
season

Note(s): Sample size = 1,316

1980s, Silverstein *et al.* (1986) determined that women's magazines contained significantly more diet product advertisements than men. Furthermore, 20 years later, Gough (2007) reports that magazine advertising tends to target women as experts in healthy dieting and men as indifferent to healthy food. The present study also confirms that food advertising is primarily addressed to women, as demonstrated by the statistically significant data contained in Table 7. An aspect that undoubtedly contributed to this result was the choice of magazines; of the six publications, two are purely masculine. In the table below, we have distributed the products by category and reference target. Apart from men and women, a generic target was included, associated with products that are not gender specific. The percentiles are rather similar, namely 35% women, 34% generic and 31% men. This finding is surprising, in that the food products reserved for men only represent 31%, when two of the magazines under analysis have an exclusively male readership. The product category that bucks this trend regards food supplements, more than 40% of supplement advertisements

Product_category Frequency Pct Riga Pct col	Target			Total
	Women	Generic for everyone	Men	
Dietary supplement	134 26.22 28.94	170 33.27 38.03	207 40.51 50.99	511
Beverages non-alcoholic	100 50.00 21.60	84 42.00 18.79	16 8.00 3.94	200
Milk and dairy products	65 54.62 14.04	38 31.93 8.50	16 13.45 3.94	119
Miscellaneous	27 29.67 5.83	38 41.76 8.50	26 28.57 6.40	91
Bread, cereals and pasta	44 53.66 9.50	21 25.61 4.70	17 20.73 4.19	82
Desserts/foods high in fat or sugar	24 35.82 5.18	22 32.84 4.92	21 31.34 5.17	67
Ingredients and condiments	25 42.37 5.40	15 25.42 3.36	19 32.20 4.68	59
Protein-rich food	15 25.42 3.24	24 40.68 5.37	20 33.90 4.93	59
Beverages alcoholic	3 5.36 0.65	6 10.71 1.34	47 83.93 11.58	56
Vegetables	12 27.91 2.59	15 34.88 3.36	16 37.21 3.94	43
Fruits	14 48.28 3.02	14 48.28 3.13	1 3.45 0.25	29
Total	463	447	406	1,316

Note(s): Sample size = 1,316

Table 7.
Product category by
target

being addressed to men (40.5%). A similar trend regards alcoholic drinks advertisements, which are addressed exclusively to men (84%). As concerns the other main product categories, women remain the preferred target audience, as is the case for non-alcoholic drinks, milk and dairy, bread and pasta. The 59 advertisements in the category “protein-rich food” are mainly directed at a generic or mostly male target audience. Smaller differences were recorded for other products, like desserts or ingredients (see Table 8).

The data for food supplements show a preponderance of food advertisements during the cold season, while in spring and summer, there are no notable differences between food products and food supplements, which confirms that food supplements are mostly bought when summer is near.

4.2 From promotional statements to claims

The research then continued with the analysis of the promotional statements (see Table 9). We noted that the majority of the statements pertain to the first three entries in the following table (“consumer related”, “contains specific nutrients” and “good for general health and nutrition”), while the other claims that are the object of the survey, including “minimizes/eliminates certain substances” and “for weight control”, are less frequent. The item “Miscellaneous” contains products that do not fall under any of the other categories. Table 9 also shows that there is a statistically significant variation between promotional statements and seasons (chi-square = 72.95; df = 5; $p < 0.0001$).

The research further focussed on the claims that are subcategories generated by the promotional statements (see Table 10). The association between year and claim also proved statistically significant (chi-square = 310.57; df = 30; $p < 0.0001$). Starting from the statements, we established 17 different claims, each with different contents. The yearly frequency of each of these 17 claims was then analysed. The claim that was most frequently encountered in the analysed advertisements was *taste\smell*, present in 30.85% of the messages. The second and third most used claims are *contains vitamins\minerals* and *good for general health*, present in 16.79 and 13.15% of all the messages, respectively. The last claim to have a significant presence is *weight control*, present in 10.49% of all advertisements. The other claims proved to be less frequently used. In terms of yearly distribution, the claim *taste\smell* proved to be on a steeply growing trend, going from a relatively stable occurrence rate in the first three years of the analysis (68 occurrences in 2014, 78 in 2015, 53 in 2016) to 207 occurrences in 2017. The use of the claims *good for general health* and *weight control* has gone down in the lapse of time between 2014 and 2017.

Claims too are influenced by seasonality (see Table 11): *taste\smell*, which is the claim most used for the promotion of food products, appeared 406 times, a staggering 278 occurrences –

Food_supplement Frequency Pct Riga Pct col	Season		
	Summer/spring	Fall/winter	Total
Food	355 44.49 51.90	443 55.51 70.09	798
Supplement	329 63.51 48.10	189 36.49 29.91	518
Total	684	632	1,316

Table 8.
Differences between
food and supplement
product in the seasons

Note(s): Sample size = 1,316

Promotional_statement	Season		Total	Health claims in Italian magazines
	Summer/spring	Fall/winter		
Consumer related	159	305	464	35.26
	12.08	23.18		
	34.27	65.73		
	23.25	48.26		
Contains specific nutrients	208	132	340	25.84
	15.81	10.03		
	61.18	38.82		
	30.41	20.89		
General health and nutrition	169	101	270	20.52
	12.84	7.67		
	62.59	37.41		
	24.71	15.98		
For weight control	86	52	138	10.49
	6.53	3.95		
	62.32	37.68		
	12.57	8.23		
Minimizes/eliminates certain substances	42	30	72	5.47
	3.19	2.28		
	58.33	41.67		
	6.14	4.75		
Miscellaneous	20	12	32	2.43
	1.52	0.91		
	62.50	37.50		
	2.92	1.90		
Total	684	632	1,316	100.00
	51.98	48.02		

Note(s): Sample size = 1,316

Table 9.
Statement by season

which corresponds to 68% of the total – being published in the warm season, and only 128 occurrences, that is 32%, pertaining to the cold season. *Contains vitamins/minerals* is preferred in the warm season too, with 148 occurrences, compared to 73 in the cold season, numbers which represent 67 and 33% of the total, respectively. A similar, albeit less marked, tendency was registered for *good for general health* and *weight control*. *Good for general health* was present in 107 messages during summer and 66 during winter, while *weight control* appeared in 86 messages in the summer and 52 in winter. There is a positive significance for this relationship too.

4.3 Multidimensional analysis

Given the dispersion and the numerousness of the variables available for each message, we proceeded to a multidimensional correspondence analysis, in which we used as variables the food supplement, the target, the season, the year and the promotional statement, using the latter as additional variable with a two-dimensional resolution. We thus obtained the Cartesian coordinate system representation reported below as [Figure 1](#).

The closeness of the variables shows a correlation, especially in 2014, between advertisements targeting men related to the category “dietary supplement” and regarding food supplements. On the opposite slope, there are the advertisements targeting women, with a larger presence in 2015 and associated to claims like minimizes\eliminates certain substances. The years 2016 and 2017 are mainly characterized by messages aimed at a generic audience, especially during the cold season.

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Claim	Year				Total
	2014	2015	2016	2017	
Taste/smell	68	78	53	207	406
	5.17	5.93	4.03	15.73	30.85
	16.75	19.21	13.05	50.99	
	17.62	21.61	22.65	61.79	
Contains vitamins/minerals	46	56	49	70	221
	3.50	4.26	3.72	5.32	16.79
	20.81	25.34	22.17	31.67	
	11.92	15.51	20.94	20.90	
Good for general health	72	50	31	20	173
	5.47	3.80	2.36	1.52	13.15
	41.62	28.90	17.92	11.56	
	18.65	13.85	13.25	5.97	
Weight control	43	56	28	11	138
	3.27	4.26	2.13	0.84	10.49
	31.16	40.58	20.29	7.97	
	11.14	15.51	11.97	3.28	
High in fibres	34	27	12	3	76
	2.58	2.05	0.91	0.23	5.78
	44.74	35.53	15.79	3.95	
	8.81	7.48	5.13	0.90	
Health professional recommends	23	20	13	2	58
	1.75	1.52	0.99	0.15	4.41
	39.66	34.48	22.41	3.45	
	5.96	5.54	5.56	0.60	
High-quality goodness	28	16	9	1	54
	2.13	1.22	0.68	0.08	4.10
	51.85	29.63	16.67	1.85	
	7.25	4.43	3.85	0.30	
Protein-rich food	15	20	6	0	41
	1.14	1.52	0.46	0.00	3.12
	36.59	48.78	14.63	0.00	
	3.89	5.54	2.56	0.00	
Low calorie/lean	9	17	6	3	35
	0.68	1.29	0.46	0.23	2.66
	25.71	48.57	17.14	8.57	
	2.33	4.71	2.56	0.90	
Miscellaneous	9	5	11	7	32
	0.68	0.38	0.84	0.53	2.43
	28.13	15.63	34.38	21.88	
	2.33	1.39	4.70	2.09	
Easily digested	15	6	2	1	24
	1.14	0.46	0.15	0.08	1.82
	62.50	25.00	8.33	4.17	
	3.89	1.66	0.85	0.30	
Natural or pure	5	2	5	9	21
	0.38	0.15	0.38	0.68	1.60
	23.81	9.52	23.81	42.86	
	1.30	0.55	2.14	2.69	
Hair growth	8	2	5	0	15
	0.61	0.15	0.38	0.00	1.14
	53.33	13.33	33.33	0.00	
	2.07	0.55	2.14	0.00	

Table 10.
Claim per year

(continued)

Health claims
in Italian
magazines

Claim	Year				Total
	2014	2015	2016	2017	
Low in fat	5	0	2	1	8
	0.38	0.00	0.15	0.08	0.61
	62.50	0.00	25.00	12.50	
Sugar free	1.30	0.00	0.85	0.30	
	2	4	2	0	8
	0.15	0.30	0.15	0.00	0.61
Convenient/quick	25.00	50.00	25.00	0.00	
	0.52	1.11	0.85	0.00	
	4	0	0	0	4
Contains specific fat	0.30	0.00	0.00	0.00	0.30
	100.00	0.00	0.00	0.00	
	1.04	0.00	0.00	0.00	
Total	0	2	0	0	2
	0.00	0.15	0.00	0.00	0.15
	0.00	100.00	0.00	0.00	
Total	0.00	0.55	0.00	0.00	
	386	361	234	335	1,316
	29.33	27.43	17.78	25.46	100.00

Statistics	Statistics for the claim table with respect to year		Prob
	DF	Value	
Warning: 32% of the cells have expected counts less than 5. The chi-squared may not be a valid test			
Chi-squared	48	348.2189	<0.0001
Chi-squared rapp verosim	48	373.1669	<0.0001
Chi-squared MH	1	102.4436	<0.0001
Phi coefficient		0.5144	
Contingency coefficient		0.4574	
Cramér's V		0.2970	

Note(s): Sample size = 1,316

Table 10.

5. Discussion/conclusions

The study analyses the types of food products, beverages and food integrators advertised over the four-year period in the six selected magazines. Some indications for the revision of advertising messages, of nutrition-related information and of the food products advertised by the industry were yielded by the study. First and foremost, the study throws into sharp relief the need to communicate with a greater degree of precision not only the type of product and the corresponding characteristic (for instance, how much of a particular nutrient the product contain or that it is free of a certain substance) but also the relative health benefits. The consumer may benefit either by acquiring greater knowledge and education in terms of food behaviour or from the actual use of the product. A second important indication is related to the seasonality of the products, which is very marked for some types of claims, but which can be greatly improved for certain references that are still little representative, although strongly season dependent. Finally, regarding gender differences, there are still ample margins for intervention as concerns the targeting of advertising towards men or women, even though the study shows a progressive closing of the gap between the consumption models for many products, first amongst them being food supplements. Corporate efforts should aim at improving the food and nutrition habits of the consumers, a result which could be obtained by the convergent efforts of companies to put out better promotional messages and of the policymakers to encourage the improvement of the quality of food products and the

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Claim	Season		Total
	Summer/spring	Fall/winter	
Taste/smell	128	278	406
	9.73	21.12	30.85
	31.53	68.47	
Contains vitamins/minerals	18.71	43.99	
	148	73	221
	11.25	5.55	16.79
Good for general health	66.97	33.03	
	21.64	11.55	
	107	66	173
Weight control	8.13	5.02	13.15
	61.85	38.15	
	15.64	10.44	
High in fibres	86	52	138
	6.53	3.95	10.49
	62.32	37.68	
Health professional recommends	12.57	8.23	
	40	36	76
	3.04	2.74	5.78
High-quality goodness	52.63	47.37	
	5.85	5.70	
	43	15	58
Protein-rich food	3.27	1.14	4.41
	74.14	25.86	
	6.29	2.37	
Low calorie/lean	28	26	54
	2.13	1.98	4.10
	51.85	48.15	
Easily digested	4.09	4.11	
	18	23	41
	1.37	1.75	3.12
Miscellaneous	43.90	56.10	
	2.63	3.64	
	20	15	35
Natural or pure	1.52	1.14	2.66
	57.14	42.86	
	2.92	2.37	
Hair growth	20	12	32
	1.52	0.91	2.43
	62.50	37.50	
Low in fat	2.92	1.90	
	10	14	24
	0.76	1.06	1.82
Sugar free	41.67	58.33	
	1.46	2.22	
	11	10	21
Miscellaneous	0.84	0.76	1.60
	52.38	47.62	
	1.61	1.58	
Low in fat	9	6	15
	0.68	0.46	1.14
	60.00	40.00	
Sugar free	1.32	0.95	
	6	2	8
	0.46	0.15	0.61
Miscellaneous	75.00	25.00	
	0.88	0.32	
	5	3	8
Miscellaneous	0.38	0.23	0.61
	62.50	37.50	
	0.73	0.47	

Table 11.
Claim per season

(continued)

Health claims in Italian magazines

Claim	Season		Total
	Summer/spring	Fall/winter	
Convenient/quick	3	1	4
	0.23	0.08	0.30
	75.00	25.00	
	0.44	0.16	
Contains specific fat	2	0	2
	0.15	0.00	0.15
	100.00	0.00	
	0.29	0.00	
Total	684	632	1,316
	51.98	48.02	100.00

Statistics for the claim table compared to season			
Statistics	DF	Value	Prob
Warning: 24% of the cells have expected counts less than 5. The chi-squared may not be a valid test			
Chi-squared	16	121.0392	<0.0001
Chi-squared rapp verosim	16	124.4086	<0.0001
Chi-squared MH	1	17.6152	<0.0001
Phi coefficient		0.3033	
Contingency coefficient		0.2902	
Cramér's V		0.3033	

Note(s): Sample size = 1,316

Table 11.

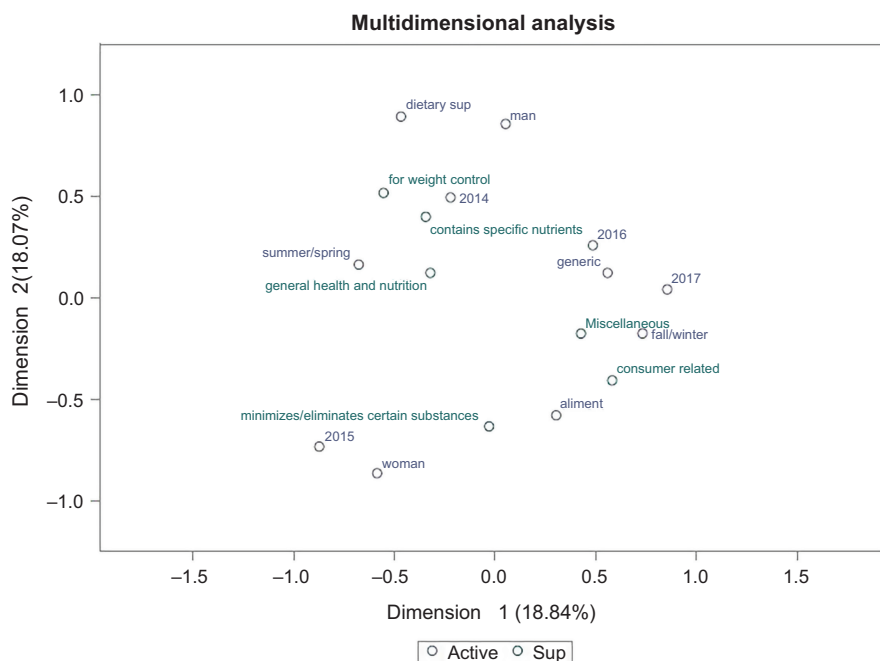


Figure 1.
Multidimensional
analysis

thoughtful design of promotional messages addressed to consumers so as to foster more reasonable choices. The authors intend to continue the analysis of print advertising messages, although they are aware that, while still being an important tool, magazines are

losing their relevance as sources of information. The research could be extended by means of a similar study dedicated to television and social media, which are now more representative of food-related communication.

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