

The Visual Discourse of Food and Its Impact on Health: Research and Practical Implications

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Abstract

Food consumption and eating behaviors are variably affected by a whole range of factors and strongly influenced by environmental and social contexts. According to different studies, the highly use of food images in media and publicity, and brand placements in movies and fashion could explain reinforcing new eating behaviors and lifestyle patterns. The aim of this review is 1) to highlight the adoption of the visual discourse of food in media, advertisements, movies and fashion to promote new consumption norms; and 2) to suggest a collaborative effort to build smart food policies with inputs from food, fashion and film industries. Food endorsed by celebrities and brand logo in advertising are undoubtedly the most visible forms of food marketing communications. Besides, social media and mobile technologies provide novel opportunities to support food marketing and advertising techniques. Food brand placement is another marketing strategy highly used during the last decades by the advertising and food industries to reach consumers. Food brand placement is present in all types of movies, which present in their imagery a world and food that are always patently made by economic and cultural power. Food and fashion industries are strongly connected and use similar worldviews with same economic logic and marketing strategies including; merchandising, brand placement and social media. Public health efforts to promote healthy food patterns and lifestyles must compete with pervasive food marketing for unhealthy products. Public-private partnership is crucial to regulate food marketing strategies and enhance public health efforts. Social networks sites could be also used as potential means to increase the reach and efficiency of public health nutrition activities, such as visual communication for healthy food marketing and nutrition education. This review considers the great challenges related to food and health and suggests a framework illustrating the effect of the visual food discourse on health. This framework is the most comprehensive path for meeting the grand challenges in visual food marketing by setting focus and priority areas for food policies. Research and practical implications are also suggested with the goal of better understanding the visual discourse of food and improving public health. Finally, this review supports the concerns of nutrition experts and policy regulators about the bourgeoning practice of placing nutritionally poor food and beverages in popular entertainment formats such as media, fashion and movies.

Keywords: Food; Advertisements; Marketing; Media; Social Media; Movies; Fashion; Brand Placements; Persuasive Messages; Food Policies

Abbreviations

TFCs: Transnational Food Corporations; SNSs: Social Networking Sites; SMM: Social Media Marketing; SFM: Slow Food Movement

Introduction

Food is not only the source of nutrients for human, but also plays various roles in our daily lives, beliefs, attitudes and socioeconomic [1,2]. Food is an important component of a society [2] and has many symbolic meanings; it expresses and establishes relationship between individuals and their environments, as well as between

individuals and what they believe [1,2] and who they want to become [2].

The food industry is an old industry where history, culture, tradition and branding tend to have great value [3,4]. Over the last decades, food companies began to put more resources into their branding and marketing activities, thus the proportions of branded foods increased [5-7]. According to several studies, a brand guarantees the quality and safety of a product in consumers' minds and ensures competitive superiority against its competitors for longer periods [7]. Thus, the food company with a brand or brands can

achieve higher returns [5,6,8]. Various methods for strengthening food brands have been proposed, including brand placement, which is a signal or a method to send a cue to consumers [9-11]. Brand placement is the paid integration of a brand into noncommercial contexts such as movies, television programs, music videos [10] and fashion shows [12] leading to a positive shift in brand attitude because the branded food becomes more familiar to the recipient [7,10,12].

Therefore, food consumption and eating behaviors are variably affected by a whole range of factors and strongly influenced by environmental and social contexts [13-15]. Globalization, food availability and accessibility, food choices, socio-demographic factors, socioeconomic status, religion, culture, consumer attitudes, branding and marketing are considered major drivers of food consumption and dietary behaviors [2,14-16]. Some of these drivers are specifically related to the nutrition transition that is associated with rising rates of malnutrition, eating disorders, obesity and chronic diseases such as diabetes type 2, cardiovascular diseases and cancer [2,15]. The consequent health and economic burden arising from the nutrition transition is enormous and complex [4,15].

In the middle of globalization era where technology is more and more omnipresent, food sector doesn't represent an exception [15-17]. Thus, people have more prosperous livelihood at their disposal and are endlessly looking for the modern and trendy food [15-17]. Urbanization, for instance, has had and will continue to have numerous consequences in the globalization of food consumption patterns [14,15]. This is already particularly evident in leading to new and improved: 1) distribution and food systems infrastructure, 2) points of sales including large supermarkets dominated by multinational corporations and Transnational Food Corporations-TFCs (franchises and manufacturers) such as McDonalds, KFC, Nestle, Coca-Cola, etc. and 3) food marketing strategies with greater access to modern mass and social media [15].

Consumers of today are seeking for food and beverages that inspire them by offering them an emotional connection with the products they consume. They are looking for products with specific properties (taste, nutritious, brand, price, etc.) that appeal to all their senses [17,18] and strongly identified and accepted by their social networks [13].

Food manufacturers [17] and marketers [15] face a great challenge while they try to satisfy the increasingly complex preferences of different consumers. Many giant TFCs launched aggressive marketing campaigns using different techniques (ads in mass and social media, strategic placement of brand logos in fashion, and brand placements in movies) to penetrate consumer bases and drive their food choices [7,18,19]. Therefore, it is the food industry along with the food marketers, especially of fast and junk food, which are re-

sponsible of manipulating of the consumers' minds, appetites and desires to the extent that their products become irresistible [18].

Given that much eating takes place in a social context it is important to understand how, why and who will affect what we eat [2,13,20]. According to different studies, the highly use of food images in media and publicity, and brand placements in movies and fashion could explain reinforcing new eating behaviors and lifestyle patterns [4,13,21,22].

The aim of this review is 1) to highlight the adoption of the visual discourse of food in media, advertisements, movies and fashion to promote new consumption norms; and 2) to suggest a collaborative effort to build smart food policies with inputs from food, fashion and film industries. A picture of the different visual discourses of food, trends and implications on health, along with the need of comprehensive public health nutrition policies is being discussed in the following sections of this review.

Food in media

Choosing which media to use to reach the target market constitutes a major decision. Researches that generate psychographic data (data concerning interests, opinions, activities) provide added insight into the most effective ways to market and advertise a food product to the target consumers [21,23]. Basically, food industry is concerned about two factors, effectiveness and efficiency, when developing their media plan to promote their goods. Food industries and marketers attempt to use appropriate media plans in their communication strategies that will provide maximum impact (effectiveness) at minimum cost (efficiency) [24]. The following are key decision areas in a worthwhile media plan: what media to use? What message to communicate? How often to deliver messages? The length of time to run the media campaign? In what markets to provide advertising coverage? [23].

Food marketers and advertisers are constantly monitoring changes influencing communications strategies [24]. For example, globalization, social and demographic changes, introduction of cable channels and the wide availability of so many television viewing options, direct marketing techniques such as mailing and telemarketing, and the Internet. With regard to other mass and social media channels, people are listening to radio and reading magazines and newspapers less. Considering these trends, food industries have no alternative but to look at new and better ways of reaching the consumers [21,23].

Because visual stimuli are better recognized than words, food advertisements [24] and brand logo designs-as key identifying features [19] are undoubtedly the most visible forms of marketing communications today. The potential effect of brand logo recognition and celebrity endorsements for food in advertisements on the consumer food choices and patterns are discussed in the following sections.

Food and brand logos

Brand logo is the visual representation of a company or a brand and is a crucial means to communicate corporate and brand identity in rapidly changing market [7,19]. The value of a good logo is recognized in marketing practices judged by a considerable amounts of money spent on (re) designing and communicating logos. For instance, redesigning Pepsi logo in 2008 cost \$ 1million [25] and a food company like Taco Bell spends 20 times more on signs with name and logo than on traditional advertising [26].

With more brands on the market than ever before, it is increasingly vital and challenging for food businesses to differentiate their brands from competitors [7,19]. One way to be distinct from competitors is to extend self-expression for consumers and create a bond between the consumer and the brand through establishing a likeable, relevant brand personality. Brand personality is a multifaceted concept defined as attributing human characteristics to brands in order to strengthen consumers’ brand loyalty and enhance their perceptions of product quality and appearance [7,21].

Especially for the Fast Moving Consumer Goods such as food [19] and fashion [7,12,27], creating brand recognition and brand personality through brand logos is a key element of market success. Color [7] and specific design characteristics [19] of the brand logo are very powerful marketing tools to communicate product information and brand image to consumers and play a substantial role in consumer decision-making while shopping for food or clothes. The visuals in the next section showed that the food brand logos used in different advertising techniques are for the unhealthiest fast food and beverages products.

With regard to the effects of brand logo exposure, 2 psychological processes determine the inverted-U relationship between exposure and liking to choose or reject the product. At first, there is an increasing positive relationship between exposure and liking (habituation), however after a certain tipping point, saturation occurs and liking decreases among consumers (tedium effect) [19]. Indeed, well-established logos are faster recognized and have higher influence than more recently established logos [19,21]. Although advertising and brand logos are used to influence consumer’s food choices, there is a differential effect between both marketing strategies. Advertising serves a specific goal, namely consumer persuasion. In this context, consumer becomes tired of excessive repetition of the same advertisement prompting tedium effects [28]. Brand logos on the other hand are not regarded as persuasive tools [29] and are used across different settings (product packaging, fashions, stationary, etc.) as main cue for representing the business and its value. In these contexts, as brand logo may blend into the environment and become as part of consumer’s daily life habituation in not necessarily related to tedium [19].

Food and celebrity endorsement in advertising

Today’s societies are fascinated with celebrities from variety of fields, ranging from entertainment to sports, cuisine, business and politics. In actual fact, mass [30] and social media [21] are saturated with pictures of and information about celebrity figures that are enjoying high profiles and glamorous images in the eyes of the public.

As more and more food industries engage in international markets, the concept of global consumer groups sharing similar styles, tastes and values has gained popularity among advertisers these days [18,31]. No wonder food advertisers and marketers invest great sums of money in employing celebrities to promote their products, this advertising practice is called “celebrity endorsement” [18,21,31]. Celebrity endorsement dates back to the late 19th century and has drawn a considerable amount of research attention because celebrities are considered highly influencers on consumers through perceived attributes such as attractiveness, likeness, expertise, familiarity and trustworthiness [21,31]. The majority of males and females celebrities in advertising fell into the categories of actors, singers, sports figures, comedians and artists [21,31]. They often portrayed themselves (served as spokespersons) or acted in different roles or characters other than themselves [31,32].

Unlike other advertising practices, celebrity endorsement provides a culturally meaningful connection between the product and the consumer [31,32]. For international food advertisers, the idea of employing celebrities with worldwide recognition and popularity appears to be a promising standardized advertising strategy to effectively reach consumers around the globe, which enhance the concept of global consumer groups [24,31]. For instance, PepsiCo created several ads showing well-recognized persons including: David Beckham (football player), Shakira (singer) and Russel Crew (actor). Moreover, the food or beverage product endorsed by the celebrities is often associated with emotions (fun, power, cheerfulness, etc.) in order to make it seem more desirable for the consumer [33].

Figure 1

Due to the demonstrated influence of celebrities endorsement practice in food marketing, a similar trend should be used in health education and nutrition promotion programs that might anticipate a celebrity providing publicity in a specific healthcare area in order to endorse healthy lifestyles patterns to the public [23,32].

Food in social media

Social media has emerged as a potentially powerful and stimulating channel of communication [34,35] and is expected to significantly impact almost every sectors such economy, education, health, food and other industries [21]. Adoption of social media for daily use may differ between people and depends on demographic characteristics (age, gender, education and socioeconomic levels, Internet literacy), and cultural factors [34].

Social media [21] and mobile technologies [34,36] provide novel opportunities to support food marketing and advertising techniques. An expanding number of people use the Internet in their

daily life, such as following bloggers, sharing stories and pictures related to fashion, food, sports and other activities [21,37] and assessing health information [38]. More specifically, the growth of interactive and dynamic Web applications has allowed the growth of Social Networking Sites (SNSs) including but not limited to Facebook, Tweeter, Instagram and Blogs [21,35]. These subset sites of social media allow users to engage with and shape content, from creating a network of connections with other users, to posting their own content, to engaging with pictures, and to reacting and adding to content posted by other users. Therefore, SNSs are characterized by their ability to generate direct communication and 2-way interaction between users, thus generating networks of users [23,38,39].

The global and swift spread of SNSs is fast-tracking the use of Internet for food digital marketing, which is a powerful omnipresent marketing tool especially for adolescents and young adults [21,23]. By providing individuals a platform to share their opinions, personal experiences, food pictures, dietary stories and behaviors with a larger audience, digital food marketing can lead to the development of new food norms leading to the creation of social pressure to “FIT IN”. For instance, the high prevalence of fast food references on these digital spaces leads to the normalization of fast food consumption.

Besides, the growing popularity of social media, it has the potential to becoming the unique significant source of food information, dietary patterns and ideal body type [23]. For females, the ideal body type is slim and toned, for males, it is lean and muscular. Although the current and trendy stresses the media place on weight control and muscle development can help to promote health-conscious societies, negative impacts have emerged as well. These negative influences include body dissatisfaction and extreme preoccupation with attaining the highly advertised ideal body image, which can lead to frequent dieting and eating disorders especially among adolescent females [35].

Because of the open nature of social media and the potential for posting of exaggerated or falsified statements and pictures on these platforms, the credibility and constancy of the posted content will remain a problem that requires specialized controlling systems and online marketing regulations [21].

Food in movies
History of food in movies

Since the silent era, food has been part of motion pictures (e.g. Chaplin movies) but rarely noticed and was considered as movie extras [40]. In 1927 and after the introduction of “talkies”, it was possible to see and hear food preparations such as sizzling meat in a pan. That is until the 1970s and 1980s when filmmakers discovered food’s photogenic qualities helping them to made food a star, thus giving birth to a new movies category namely “food films” [40].

In his book “Food in the Movies”, Zimmerman [40] reviewed over 800 American and foreign films to document how food has been treated in movies from the silent era to 2010. This book highlighted the significant cultural, technical and cinematic forces faced over

the past century and that contributed to the emergence of “food films” [40]. The following picture presents the most popular food movies: Tampopo (1986), Babette’s Feast (1987), *Like Water for Chocolate* (1992), *Eat Drink Man Woman* (1994), *Big Night* (1996), *Mostly Martha* (2001), *No Reservations* (2007), *Ratatouille* (2007), and *Julie and Julia* (2009).

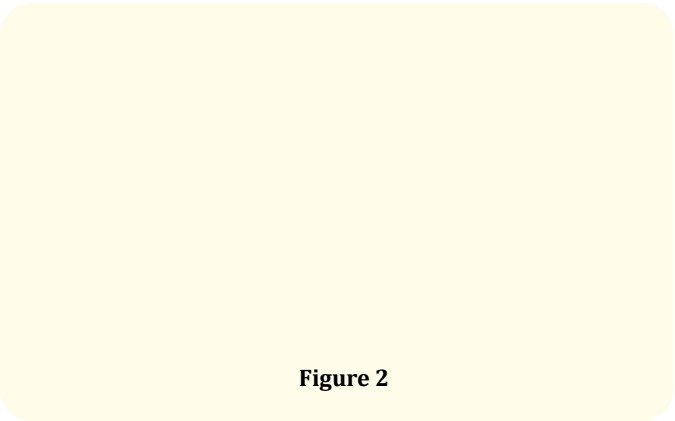


Figure 2

Zimmerman also presented the culinary efforts required to prepare the magnificent delicious dishes we see on the screen [40]. Beforehand, when food did appear in a scene it was often used to help move the plot along and generally such scenes showed the food that actors are about to eat but cuts to another scene leaving the audience to imagine the actual eating of the meal. When movies took a turn toward greater realism in the late 70s, food began to be employed more than a support or transition device, thus introducing more regular eating scenes [40].

The evolution in studio photography in 1960 also helped the professional food photographers to create significantly superior images in their studios by avoiding the use of “hot lights,” which tended to fade and melt food on the set [40]. In the 1970s, these food photographers worked side by side on set with creative food stylists (mostly women majored in home economics) who with their skills helped make food look radiantly beautiful and startup this revolution in food photography [40]. Today, no reputable studio food photographer or Hollywood cinematographer would roll the cameras without culinary stylists or professional chefs on the set to create maximum appetite appeal [40].

Colors are also vital to portraying food and to convey taste and smell. The use of color film in America increased from 4% in 1940 to 94% in 1970, giving cinematographers the ability to make food look more appealing. Although, technological forces and existing skills helped the filmmakers to make food a star in films, but one critical element for their eventual success was creating the “food-loving movie market” [40].

Between 1950 and 1970, American people began to use their increased affluence to explore new leisure activities, such as traveling in Europe, where they were introduced to many of that continent’s culinary delights. For instance, in 1963 Julia Child in her TV series *The French Chef* encouraged her audience to enjoy the palates of French cuisine at home.

At that time, a culinary revolution was taking place in America's restaurants where new cooking styles (Tex-Mex, Asian-fusion, etc.), and lighter and healthier versions of classic dishes became more popular [40]. Over time, as people interest in fine and exotic foods grew, food suddenly became a subject ripe for cinematic attention.

Much like food photographers and stylists, famous American movie directors began challenging the norms of traditional filmmaking in their quest for creative freedom and taking notice of the growing popularity of all things related to food which had the unintended effect of helping for the arrival of "food films" [40]. For Francis Coppola for instance, this meant incorporating food into his movies as a cinematic component to enhance the movie story and enrich his characters.

It is worth mentioning that for movie directors, the task of making food look absolutely marvelous was an extremely demanding and challenging task [2]. According to supervising technical director Michael Fong, *"Our mission was to create the most beautiful food you've ever seen. We wanted the audience to be thinking 'Mmmm, I'd like to jump into the screen and actually eat that!' But it's hard enough to create such meals in real life, let alone in the computer generated milieu"*.

Obviously, it has taken a long time for food films to reach the silver screen but now that they are trendy in this globalization era we will definitely see more and more mouth-watering food scenes in all types of movies. These scenes have in their own distinctive ways a big role in enriching the movie story, capturing viewers' attention and arousing their appetites [22,40].

Food and beverages brand placement in movies

Brand placement is the paid presence of branded products into noncommercial contexts including movies, TV programs and music videos [10,22]. They have longer lifetime than typical advertisement because the brand placement constantly exist even after the movie is showed on TV or released on DVD [27]. This marketing strategy is highly used during the last decades by the advertising and food industries to reach consumers [11,22,41]. For example, prominent alcohol brand placements in popular movies of all ratings- particularly in youth rated movies- nearly doubled during the past 2 decades and are associated with youth' brand preferences and higher levels of problematic drinking behavior [41]. In the 1980s and 3 months after the Reese's Pieces (peanut butter candies) appeared in the movie E.T. brand sales of Reese's Pieces manufactured by Hershey Company increased 65% [42,43]. This demonstrated the potential power of food brand placement in the movies as an influential marketing tool [22,44]. More specifically, for food marketers and companies targeting youth, when a favorite star uses a certain food or beverage brand, that brand gets linked to all characteristics young admirers see in their movie idol [21]. This explain why brands commonly placed in movies are the mostly highly advertised brands, and the same products youth tend to choose in their daily lives [11,21].

On the other side, consumers prefer this popular format of the brand placement in movies because it enhances the realism of noncommercial content [10,27,44] and because it blurs the line between advertising and entertainment make it seen less as a persuasive message than traditional advertising [10,44]. In any typical advertising, children are unaware of the persuasive nature of advertising, thus they are more susceptible to advertising effects but when persuasion knowledge is activated with age, advertising impact will decrease [44,45]. Conversely, brand placements carry hidden messages that can lead to behavioral effects that are impossible to resist [44,45] even for older ages [44].

Auty and Lewis [45] suggested a mere-exposure explanation of brand placement effectiveness without measuring brand attitude and liking among people. However, other studies suggested the use of implicit- persuasion model to study the effectiveness of brand placements in the movies [27,44]. The key characteristic of this model is that it does not necessarily predict an effect on brand attitudes [46]. The basic idea behind the implicit-persuasion model is the difference between explicit and implicit attitudes. Explicit attitudes are those of which we are consciously aware, they are deliberative and we can control them. In contrast, implicit attitudes are automatic affective reactions resulting from the particular associations that are activated automatically when a person encounters a relevant stimulus [27,44]. It has been demonstrated that exposure to advertising can influence implicit attitudes without any effect on explicit attitudes [47]. The use of implicit memory to measure the effect of brand placements has been tested in TV programs and video games suggested that brand placements can prime the brand in memory, which could influence later judgments or behaviors related to the brand [27]. Translated to the brand placement in movies, it can be expected that the affective response to the main character using a product becomes associated with the product without conscious awareness of the process [27,44]. Moreover, brand placements that are more visually prominent or play a major role in the story line of the movie namely, "high plot visual placement" have more effect on people' memory than less prominent and low plot brand placements [27].

A study on the prevalence of food and beverage brands portrayed in movies from 1996 to 2005 identified a comprehensive picture of types of: 1) brand placements (use by a major or minor character, product name or logo identified, verbally mentioned, spoof "e.g. Farbucks instead of Starbucks", etc.); 2) food and beverages categories (cereals, convenience meals, confectionery, salty snacks, milk, juices, etc.); and 3) manufacturing companies associated with each of the brands [22]. Results of this study showed that 69% of the top 200 revenue-grossing US movies released between 1996 and 2005 contained ≥ 1 brand placement and 1180 brand placements were overall identified in 138 movies. Comedies, horror and action movies had more brand placements than other films genre. Six giant food companies accounted for 45% of all brand placements (PepsiCO, Coca-Cola, Burger King, Mcdonald, Nestle and Dr Pepper Snapple). This study conclude that movies are a powerful source of advertising specifically to youth who are gaining independence with respect to their food choices and dietary patterns [22]. In line

with other study [4], most of the brand placements were for unhealthy products, energy dense food and beverages with little nutritional values.

These findings from scene brand placements, as movies' pictures showed below, provide a benchmark on how all types of movies present in their imagery a world and food that are always patently made by economic and cultural power [4,10,22,27,44].

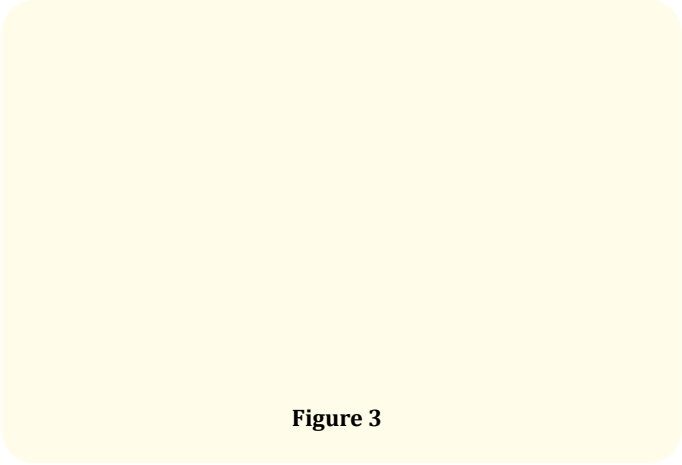


Figure 3

Food in fashion

Fashion is highly emblematic, self-communicative, and reflecting a culture' values and a consumer's lifestyle [48]. Fashion industries tend to create lovable brands personality through various elements including but not limited to characters and brand logos [7,49]. For example McDonald's "I'm lovin it" on clothes and accessories (see the T-shirt picture below).

Fashion marketers consistently rely on a variety of marketing and advertising techniques to achieve their ultimate goal namely "development of a loyal relationship between the fashion brand and the consumer" [49]. One of the aggressive marketing strategies used to attract people, especially youth, include "merchandising", which is the use of TFCs' brand names or logos on clothing and accessories as the following pictures showed [21,50].

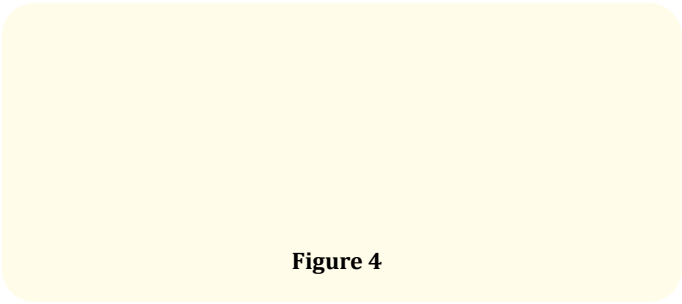


Figure 4

To survive the challenges of high competition in fashion industry, this "merchandising" technique in junction with the use of social media marketing –SMM appear to be appropriate for retaining existing consumers and attracting new shoppers [39]. Consumers' trust and intimacy are fundamental to build the consumer relationships in the fashion field [39]. Marketing studies showed that the use of merchandising [21] and SMM influence positively consumer relationships (trust and intimacy) and purchase intention [39] especially if these strategies are endorsed by celebrities [21,39].

Kim and Ko [39] described extensively how the 5 characteristics of SMM (customization, entertainment, interaction, trend and word of mouth) help to strengthen the consumers' trust and intimacy via interaction with other users on social media sites. Besides, these commercial visual messages of "foody fashion" facilitate the triangular interactions between fashion industry, food industry and consumers, especially children and adolescents [51]. This triangular relation will be translated to action and "People will taste what they will see and wear" [51]. It is tremendous how such pervasive marketing strategies can influence consumers' perceptions of food intake, body image and lifestyles [21,51].

In ways heavily influenced by the food sector, fast fashion brands have emerged after 2000 in the global fashion industry [12,27]. It was called "MacFashion" similar to McDonalds meaning fast, convenient and at a low-cost. In both fashion and food industries, fast is an economic tool to increase mass production and grow profit [12]. In the food sector, and in response to the expansion of fast food with the opening of McDonalds restaurant in Rome, a social movement known as Slow Food Movement-SFM appeared. This SFM started as a reaction to globalized and homogenized fast food culture with a broader set of negative consequences on traditions, health, ecology and environment [12,27]. In fashion like in food sector, fast fashion is sensitive to trends and to consumer preference for eco-friendly products despite the business growth [27]. Therefore, many concerns are raised about anti-environmental issues due to globalization and mass production promoting for the slow culture and values movement in Fashion as well [12].

Above all else, food and fashion industries are strongly connected and use similar mechanisms to induce diversity, pleasure, trendiness, quality, practicality, and satisfaction among their consumers. They both use similar worldviews with same economic logic and marketing strategies.

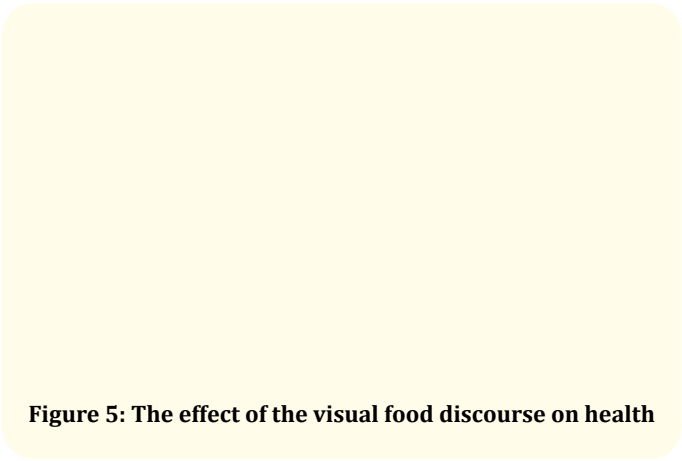
"I have used the power of fashion to tackle social, environmental, economic and ethical issues. Many people see fashion as ephemeral and frivolous but I see it as creative, enterprising, multi-faceted industry that is vital to our economic and personal well-being" said Professor Frances Corner, Head of London College of fashion and Pro Vice-Chancellor Digital of University of the Arts London.

Smart food marketing and policies

Public health efforts to promote healthy food patterns and lifestyles must compete with pervasive food marketing for unhealthy products [21,52]. Such marketing activities often features brand characters and brand placements techniques designed to appeal to individuals emotionally by creating positive association between the character, logo and the advertised product [7,19,52]. The Institute of Medicine recommends the use of successful advertising strategies through branding healthy foods using visually appealing techniques; this is referred to as counter-marketing [21,52]. Therefore, public-private partnership is crucial to regulate food marketing strategies and enhance public health efforts [21]. However, this partnership is challenging due to the fact that the partners represent different types of entities (governments, industries, businesses and researches) with differences in perspectives and interests [53].

Besides, SNSs could be also used as potential means to increase the reach and efficiency of public health nutrition activities, such as visual communication for healthy food marketing and nutrition education [23]. These new technological tools offer a range of high visibility possibilities at very low cost for establishing multidirectional communication and interaction, as well as fast monitoring public feedback and behavior. Thus, SNSs have the potential to help public health practitioners meet many challenges regarding engaging, monitoring, educating and communicating and with all public segmentations [34,38].

Based on these findings and considering the grand challenges related to food and health, this review suggests a framework (Figure 5) illustrating the effect of the visual food discourse on health. This framework is the most comprehensive path for meeting the grand challenges in visual food marketing by setting focus and priority areas for food policies.



Implications
Research implication

Food, fashion and movies are global businesses; therefore future researches should include a larger and more comprehensive approach to understand the inter-relations between food marketing strategies including brand placement and their implications on health. Future research should also investigate how consumers attribute food visual discourse when combinations of marketing strategies are used and how this visual discourse will affect their actual dietary behaviors. The familiar and abundant imagery of corporate food in all types of movies tells us why such films should be important to researchers and public health nutritionists interested in nutrition communication studies and food policies studies. Furthermore, food and beverage brand placement are on par with subliminal advertising and should be studied by public health experts who study the impact of marketing on individuals specifically on youth.

Practical implication

Findings on brand placement also have policies implications. It is crucial to raise questions about the adequacy of food and beverages marketing self-regulations such as providing healthier products choices according to the food industry-developed standards or by including healthy lifestyle messages on their labels. Governmen-

tal concerned parties need to place more emphasis on monitoring and limiting brand placement of unhealthy food and beverages products in media and movies.

Given the significant health implications of unhealthy dietary behaviors among children and adolescents, teachers and parents need to develop strategies to prepare youth for these omnipresent food advertising and marketing techniques. For instance, parents can offer comments and explanations concerning the persuasive nature of brand placement and the subliminal messages when they watch movies together with their children.

Conclusion

This review supports the concerns of nutrition experts and policy regulators about the burgeoning practice of placing nutritionally poor food and beverages in popular entertainment formats such as media, fashion and movies.

As the public health nutrition field matures and our knowledge concerning the most effective ways to use food marketing tactics, and auto-regulations of food and fashion industries to support nutrition public health efforts, we expect to see additional innovative and smart policies to engage diverse and broad populations with the goal of better understanding the visual discourse of food and improving public health.

Conflict of Interest

No financial interest or any conflict of interest exists.

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