



CENTERIS - International Conference on ENTERprise Information Systems /  
ProjMAN - International Conference on Project MANagement / HCist - International  
Conference on Health and Social Care Information Systems and Technologies,  
CENTERIS/ProjMAN/HCist 2018

# I am with you: a netnographic analysis of the Instagram opinion leaders on eating behavior change

Inga Saboia<sup>a,b\*</sup>, Ana Margarida Pisco Almeida<sup>b</sup>, Pedro Sousa<sup>c</sup>, Cláudia Pernencar<sup>d</sup>

<sup>a</sup>*UFC Virtual, Federal University of Ceará, Brazil*

<sup>b</sup>*Department of Communication and Art/DigiMedia University of Aveiro, Portugal*

<sup>c</sup>*Center for Innovative Care and Health Technology (ciTechCare), Polytechnic Institute of Leiria, Portugal*

<sup>d</sup>*UNIDCOM/IADE – Unidade de Investigação em Design e Comunicação, Portugal*

---

## Abstract

Currently we are strongly influenced by the changes provided by Web 2.0. The number of users consuming and sharing online information about health and wellbeing is increasing. This is a new scenario and a fertile field to study, in which social networks and eHealth applications are powerful tools to support behavior change. This article explores the influence processes of online opinion leaders, such as health professionals and non-professional, on the food behavioral change of their followers on online social networks. We use a netnography observation method following user profiles on Instagram. Some groups and its characteristics and practices were identified. This paper focuses only on three opinion leaders categories: nutritionists, POLs and healthy lifestyle in Portugal and Brazil. Results show different opinion leaders acting as partners, but with different characteristics and practices.

© 2018 The Authors. Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Selection and peer-review under responsibility of the scientific committee of the CENTERIS - International Conference on ENTERprise Information Systems / ProjMAN - International Conference on Project MANagement / HCist - International Conference on Health and Social Care Information Systems and Technologies.

*Keywords: social media; Instagram; opinion leader; nutrition; patient opinion leader; healthy lifestyle; behavior change; eating; netnography;*

---

\* Corresponding author. Tel.: +351 965074141.

E-mail address: [inga@virtual.ufc.br](mailto:inga@virtual.ufc.br)

## 1. Theoretical framework

The Web 2.0 brought new perspectives of content production and active participation through social networks (1), which can be used in the most diverse areas, including health and wellbeing. 72% of users seek support from others with the same health issue (2), becoming one of the agents in their own treatment (3). Also, they provide health information and can influence the behavior of other internet users. These are increasingly prominent individuals called patient opinion leaders (POL). POLs and health professionals, like nutritionists (4), attract a large number of followers. Despite this scenario, there is a medical-patient communication gap (5), 99% of physician do not use social media to discuss health issues with their patients (6). The case of nutritionists needs a particular analysis, because they used social media to guide the needs of a digitally informed public (4) that want a better quality of life.

Social networks are spaces in which opinion leaders act as individuals that are capable of informally influencing the attitudes, or behaviors of others through interpersonal ties (7). There is little consensus in the literature about these groups (POLs and nutritionists), which are sometimes pointed out as opponents (4) and sometimes as partners (5). There are different opinions related to the role of each. On the nutritionists side, a culture of nutritional science that promotes the "right way to eat" through food planning and control, is rising (8). Also, they defend the superiority of their scientific knowledge, differentiating them from the others (9). POLs, ex-obese and other users that identify and increase their emotional support, set norms and expectations, encourage and judge actions (10). Another lack of consensus is being pointed on the dynamics of behavior change: some studies reflects only about those who provide support (12) and in others to those who receive it (13).

According to an under-development systematic review, the influence of the relationship between social networks and eating behavior is widely linked to peer influence (14,15) even when it comes to online (16). However, a lack of studies focusing on the social dynamics of opinion leaders was noticed. In fact, we did not find any related study in Portugal. Another important point is "eating behavior" as a quite complex concept. It is the result of a social accumulated experience, reflection and automatism (17), and it is influenced by a series of emotional and external stimulus that lead to compulsive ingestion (18,19). This behavior contributes to the origin of obesity, one of the most epidemic of the 21st century, which affects 24% of the Portuguese population and impacting the National Health System due to several diseases (20). Under this context, an analysis about the current practices of online opinion leaders that influence food behavior change using social networks was conducted. The first step was an identification, categorization and description of the opinion leaders: two categories were initially created - nutritionists and POLs (obese and ex-obese) -, but other categories latter emerged (healthy lifestyle, food diary, chefs, physical educator and health professional). This paper focuses only on three: nutritionists, POLs and healthy lifestyle.

There are many studies that show that Instagram has been a important tool for those concerned with eating healthier. Also, Instagram is seen as fun and socially acceptable.(11). It is many times used in emotional support context, and that can be seen as a tool for monitoring healthy eating.

## 2. Methods

Our study is focused on the analysis of Instagram profiles; after the literature review undertaken, a sampling procedure was conducted in order to allow the observation of relevant and representative Brazilian and Portuguese profiles. Four different sampling procedures were used:

Table 1. Procedure and results

|   |   |   |   |   |
|---|---|---|---|---|
| Google search using the keywords Instagram, food and diet. These links indicated profiles with a larger number of followers | Visualization and analyze all the suggestions provided by 24 previous Instagram profiles (80 suggestions per profile) | Instagram search using the keyword "nutri" through two different users accounts | Search for authors of "nutrition" and healthy food books that could be found in two book stores | The first 30 posts and stories of each profile were analyzed following the criteria below |
| 24 visualized Instagram profiles  | 3840 visualized Instagram profiles in total   | 200 visualized Instagram profiles   | 40 visualized Instagram profiles  | Selection - 199 Brazilian and 134 Portuguese profiles                                     |

The first 30 posts and stories of each profile were analyzed following the criteria below:

- The post contents should be about personal and / or professional experience, not a third-part experience.
- More than 70% of the posts should be about one of these categories (these principles are summative):
  - Healthy food (a meal with any type of vegetable);
  - Physical activity performing movements or persons with gym clothes;
  - People that present themselves as digital or social influencers (21, 22) (summative with another occupations), a nutritionists or a nutrition student, independent of gender, hobbies or physical activity.

We established the following exclusion criteria for our research:

- Opinion leaders who did not started their practices on social networks and who originate from greater exposure through major media such as Radio, Television or Cinema.
- Pregnant women, puerperal women, children and adolescents, due to their special stage of life.
- Profiles that have more than 30% of their posts (photographs and videos) contained advertising by others, for selling purpose or not producing their own content.
- Profiles that belonged to collective entities or that represented a food style (ex: low carb diet, slimming projects)
- People identified with a psychiatric eating disorder.
- Profile of participants in a bodybuilding competition or any other professional sports.

After analyzing all data, 199 Brazilian and 134 Portuguese profiles were found. We found the two initial categories, the nutritionists and POLs. Other categories were found: food diary, chefs, personal trainer and health professional. Obese or ex-obese were considered when people stated to have lost more than 10kgs. In this paper only nutritionists, POLs and healthy lifestyle are explored.

A netnography (23–25) observation was conducted that followed all these profiles for 6 months. It helped us to identify some characteristics and practices of each one of the groups, as described on the following section.

### 3. Results and Discussion

Four main dimensions were analyzed when exploring the Instagram profiles of nutritionists, POLs and users who have a healthy lifestyle. The first is related to how these opinion leaders present themselves online (profile photos, username and Instagram biography tool). The second concerns the content and format of their posts. The third is associated to relations with other opinion leaders and the fourth is related to the use and dissemination of other social networks and other media, allowing a boarder view of the media ecosystem used.

#### 3.1. Nutritionists

We observed 113 Brazilian and 39 Portuguese nutritionists. This group used social networks extensively for a variety of purposes, such as promoting their brand, educating patients, virtually advising, promoting products and services (4). One of the social networks most used by them is Instagram (4), due to its imagery nature, which is very related to the exhibition of lifestyles, namely healthy food. Usually, these professionals present a large audience: e.g., in Brazil, there are many cases of nutritionists with the amounts of followers, as celebrities, and this is with more than 1 million followers<sup>1</sup>. Even in smaller countries like Portugal, these professionals achieved prominence, having more public than some printed magazines.

Many nutritionists who used social network with the objective of building business and their own brand (Tab.02), as reported in Helm & Jones work (4) were founded. Their Instagram public profiles are available to any user. In terms of presentation, these nutritionists, Brazilian and Portuguese, added the words “nutri” or “nutritionist” to their username. They show contacts for schedule an appointment, lecture, and courses through a feature which is called biography in Instagram. Brazilian nutritionists present professional objectives like weight loss, while the Portuguese focus on well-being, health and high-performance sports. This defines two different sets of professional goals.

---

<sup>1</sup> Rodrigo Santoro’s profile, an international actor from Brazil, has 260 thousands; Caetano Veloso’s profile, a Brazilian singer, has 762 thousands followers, these profiles were accessed on May, 8, 2018.

There are several Brazilian posts associated to personal professional practices. The work routine is presented, with the nutritionist appearing dressed in a lab coat at their office. Considering patients photos, two main types were observed: boards with lost weight, and montages with before and after nutritional interventions. There are also closed courses, eBooks and lectures promotions on the nutritionist profiles with more followers. These actions are for non-professionals and other nutrition professionals. Some of these profiles offer a distance online course, in which people can purchase a cookbook and receive nutritional advice. This trend was not verified in the Portuguese nutritionists' context: they appear punctually associated to a different associated to a non-health professional profile. that were not health professionals.

Based on Helm & Jones studies (4), we were expecting to observe some distance between nutritionists and their followers; they point out that it is necessary to separate professional and personal contents on social media and Dodds & Chamberlian (9) also refer that these professionals usually promote themselves stating their scientific knowledge. However, our analysis find they are the same time accessible, as they answer directly to comments and show daily routines. There are many examples of this in both countries with a large number of personal photos and videos (family, physical exercises, beauty treatments, vacations, dressing beach and gym clothes, as well as the recipes confection and their meals made in their own homes). Some intimacy was also observed: nutritionists seem to answer messages and comments using a speech that sounds like a conversation, in which they talk about everyday life, not restricting to food education, although this discourse is addressed to the followers and not to the patients who are considered as a selected group. It is necessary to belong to the patient group to get personalized treatment. In spite of this intimate attitude, whenever possible, these professionals were aimed to be educator, promoting their own practice and knowledge. This situation is common in both countries.

There is an underlying commitment that is perceived through an episode in which a nutritionist posted a picture of herself eating fast food which receives feedback of depreciation and support, with thousands of likes. This act released by a nutritionist is defended by this professional as a way of showing human side, and it reminds us that the Instagram is written as a personal blog, although of the public nature.

Regarding the promotion of third-party products and services, the dissemination of food brands in the profile of Brazilian nutritionists was not observed. This was confirmed in nutritionist videos as they reported that had been warned by their professional council not to promote food brands. However, the same did not happen in Portuguese nutritionists who show videos of received products, with food brands and household items.

We observed the same categories reported by Dodds & Chamberlian (9), with Brazilian nutritionists defending a right way to eat, through the dissemination of nutritional components of foods, and the explanation of some diets. However, two other categories emerged, one of which we will call "motivational", in which one tries to give the power of food control to the follower by associating diet with something more significant, such as a change in life as a whole. At this point, nutritionists talk about life changing in which eating and overweight is only a reflection of choices and lifestyles. Their speech becomes seem like one from a psychologist or coach (Tab. 2). This motivation is not based on fear as Dodds & Chamberlian (9) associated with the nutritional discourse, but with the empowerment of the patient, as the agent to change his own life. As a consequence of this new role of the nutritionist in social networks, there is a second component, which states "to eat without guilt", which it is acceptable to fall into food temptations, but without losing control and return to a balanced diet.

Table 2. Characteristics and practices – Nutritionist, POLs and healthy lifestyle

| Characteristics and practices | Nutritionists   | POLs   | Health lifestyle  |
|-------------------------------|---|--|---|
| Objective with Instagram      | Building business   | Building business and share their experiences                                      | Building business and share their experiences                             |
| Strategy                      | Inform  | Identify   | Inspire   |
| Subjects                      | Personal and Professional, like as diet, lifestyle, exercises and motivational speech | Personal and Professional, like the stigma due to be obese and motivational speech | Personal and Professional, how much effort is needed to maintain the body |
| Spoken phrases                | "Total transformation"  |  | "It's paid"   |
|                               | "what is your purpose in life?"   |  | "Focus, strength, faith"  |
|                               | "Accept yourself and understand yourself"   |  | "Body and soul balance"   |
|                               | "If you are happy, you make the   |  | "Real food"   |

|                |   |          |   |
|----------------|---|----------|---|
|                | right choices for your body, and your life" |          | "I share what I live"                             |
| Type of speech | Scientific discourse and with intimacy      | Intimacy | Portuguese jargon was not identified.<br>Intimacy |

Portuguese nutritionists take photos of the environment itself, with significant care with lighting. The Brazilians are very focused on video content, diagrammed arts that link photography with text. The Brazilian also attempt to talk about more controversial subjects.

The association of Instagram as a complementary tool of communication and support to other media was a current practice in both cases. Portuguese nutritionists use Instagram to promote their participation on television programs, their own blogs and their printed books. Brazilian nutritionists connect more with their audience on YouTube and Facebook.

Nutritionists use the image of other opinion leaders to promote themselves. there is a dilemma in Brazil. When the patient is famous, like an artist or an opinion leader, their appointment is posted. On the other hand, there are cases when an opinion leader gives nutritional advice on Instagram and there are nutritionists that try to discredit them. The nutritionists state that this person does not know about this healthy eating and does not have academic knowledge. In the Portuguese case, this trend was not verified: instead, some nutritionists are associated with different profiles that were not health professionals.

### 3.2. POLs, obese and ex-obese:

Legatt-Cook & Chamberlian (10) analyzed blogs used as a diary for the weight loss journey, exploring the expression of opinion, feelings, frustrations, failures and its narrative around the goal of weight loss. Our research includes 47 Brazilian POLs and 16 Portuguese POLs that were analyzed. These profiles were categorized using characteristics, such as profile photography, photo montages with a before and after weight loss, the words weight loss or identify themselves as ex-obese on a field of biography. This was observed in both studied countries. In most of the profiles viewed, people are no longer obese and they are reporting their successful post-weight loss experience. This was exactly what Legatt-Cook & Chamberlian (10) predicted: POLs usually speak of their f firsthand experience of many embarrassing situations, countless traumas and failures related to diets, medicines and bariatric surgery. Intimate feelings are shared with the follower, including mentions of things they no longer remember and are now sharing, or that they have never told anyone. It seems to be almost a therapy. They state to know the pain of what is to be obese and stigma of this situation. However, the speech also reverts in a tone of achievement and pride, of something hard-won but worth it.

In this context, it is interesting to note a phenomenon that has been occurring in Brazil: ex-obese develop their business and specialize in order to provide services to others that have obesity issue. Many, in their own presentation, define themselves as a coach, providing weight loss programs and challenges for closed groups. When this occurs, there is often a set of images of them in offices, in full auditorium lectures, posts with diagrams of images and text, with their customers before and after, emotional testimony about the impact of this service on the path of life.

Challenges are one of the common practices of this community, being strongly encouraged in these profiles. Even more generalized than nutritionists, these users launch proposals to reduce the weight, which, when accepted and made by followers, which can lead to create new habits over a period. These challenges are free, promoted in advance, and with a date set for its beginning. In the Brazilian case, we find an almost professionalization with POLs. They plan various communication actions, such as: the provision of daily health guidelines through posts and newsletters. They create, foster and manage a private group for sharing and support in a Facebook community. They conceive and offer supplementary materials such as planners, cookbooks and measure sheets. There is a case found on one profile of a financial prize for whoever won the challenge. All this work seems to be initially rewarded with engaging a large number of followers, who sometimes also have to indicate their friends to increase leader profile database. Sometimes, the follower also must commit to post and show that he/she is participating, sharing a before and after challenge photo. We can even say that, in many of the profiles seen, the free monthly challenge is used to engage the follower and after offering them more personalized paid programs with special conditions configuring, thus, a remunerated activity.

Diet prescription was not directly observed, although some Brazilian profiles get financed and seem to have

notably motivational and promotional content, with few photos of meals, but many before and after photos as well as photos with followers, physical exercises, lectures, and vacations. Some videos reveal that they do not feel comfortable talking about food for two reasons: the first one is related to a possible warning of an illegal profession practice (only nutritionist can prescribe diet) and the second because they say that the weight loss secret and its maintaining is not diet but the mindset change. This can also be observed on the challenges that only have general health guidelines, suitable to anyone and all situations (such as the elimination of sugar from the diet or alcoholic beverages, 1 workout hour per day, 7 to 8 sleep hours).

However, in the Portuguese profiles, there are more food photos, several of meals made at home with recipes, or food prepared at restaurants. These food photos are often meticulously organized in spaces, quite colorful, giving an idea of something that is well planned.

One of the outstanding differences between Brazilian and Portuguese profiles is that while most of the Brazilian profiles are focused on products and services made by the profile owner, in the Portuguese case there is often the promotion of third parties (as discounts for online purchase on the field of biography of some of the profiles and videos with products received from several brands).

It is interesting to notice that against to what Helm & Jones (4) state, POLs and nutritionists are not antagonists, they act like Neimetz (5) argues: as partners to guide and to surpass the communication gap between health professionals and patients. It is common to see POLs indicating nutritionist services to prescribe diet and, in many cases, they present the nutritionist that supports them. There is often a business partnership between POLs and nutritionists through courses, videos and online conferences that are planned and attended together. Thus, there is not a great dispute between them: each one seems to keep with its own practices respecting each other.

Intimacy was also observed between POLs and their followers. The first one is accessible, answering directly to comments made in posts or videos, and showing their daily lives. The direct video feature is used and gives a better sense of real-time presence. POLs schedule meetings with their followers. These meetings are recorded through photography and video. It is also shared moments in which POLs and followers unexpectedly meet on the street, for example.

### 3.3. *Healthy lifestyle*

Instagram is the most used social media tool for "Fitspiration" posts (26). These aim to inspire people to exercise and eat healthy food. Women who have a thin or athletic ideal are the ones that usually adhere to this content (27). We consider healthy lifestyle profiles analyzing biography feature that includes words related to this concept, such as: healthy lifestyle, fitness, health, life, some sport, gym lover, and athlete. We analyzed 52 Portuguese and 36 Brazilians profiles. These were identified in most cases with the owner's first and last name, and, in a few cases, through a nickname or some personal project name. Images appear in all profiles, usually with the face and/or bikini (more usual for Brazilian women) or with gym clothes (more usual for the Portuguese ones). In both cases, the shape of the belly is emphasized. There is an intense focus on exploiting their physical image. In the biography tool of the Portuguese profiles, there is a strong allusion to the style of feeding, like vegan, vegetarian, paleo, and references to the food word, recipes, food lover, which we found not so characteristic in Brazil. In this country we have observed keywords like diet and weight loss.

There is a difference between the profiles of both countries in this category, with the Brazilian profiles having a strong professionalization. There is a large number of product promotions and partnerships with exclusive discounts and promotional actions. There are advertising posts, some marked with #ad #publi or Instagram "Paid partnership with" functionality. We even observed the creation of their own brands (for instance to produce a brand of gym and beach clothes) and the suggestion, in the biography, of an agent responsible for managing the career of the profile holder. Images are well worked, sometimes made by professional photographers, working with filters and editions and in some profiles they present themselves as an online or coach for exercise orientation, food, recipes and other purposes like life coach. In both cases, the services are promoted in the profiles, through biography tool and videos.

In Brazil these people often become celebrities and, as such, they talk about food, recipes, exercises, clothes, beauty treatments and motivation. A link to their personal life was also observed, as most of these profiles show the husband/wife, children, siblings, parents, pets and even memorable moments, such as their own weddings. Many times the motivational issue is addressed to talk about subjects such as sadness, challenges, struggles, illnesses, happiness, and change. Followers are present not only on social networks but also at events, where healthy lifestyleers are observed. In some cases, they are confronted if they really use the products that they advertise.

Despite this scenario, there is some distrust with the people who present these profiles. They are accused in their posts of excessively idealizing their lifestyle and misrepresenting their body. In fact, many of them invest in the purchase of sophisticated photographic equipment or hiring professional photographers. Lighting features and forced poses are usually used to give the body a different look and, in some cases, image editing is used for them.

There are also two other specific types of these profiles: mothers and mature women. The mothers present their children, sometimes doing even exercises together, and discuss content, as the current state of the body before, during and after pregnancy, talk about their children and food for their family. We also identify women that presenting themselves with their age, between their 30s and 40s, trying to show how to get into great shape. Another recurring practice is to show their physical before and after a daily exercise routine.

We noticed a different scenario in Portugal, as we only find, for example, just a life coach. More specific partnerships with brands and profiles were observed, namely in biography tool, where discounts and contests are announced. Portuguese profiles are more focused on food and exercise, as a kind of diary in which these activities are recorded. Also, Portuguese profiles are much more focused on presenting food with and without recipes than Brazilians. Few profiles are presenting more personal issues like family and friends.

A strategy to involve the follower, through videos in which there are informal talking in attempt to answer their followers. In some cases, messages are answered directly. Followers usually ask for advice and tips, and prizes are awarded and distributed for them.

In both countries, profiles present the diet, share information on what they eat and give recipes. They talk about the importance of more natural food and in some cases defend supplementation. There are some invitations to participate in a eating and exercise challenges. The environments presented are relatively similar, showing themselves at home, in the gym, at fairs, courses, travel, beach, countryside, and restaurants. However, parties and concerts were more observed in Brazilian profiles. Regarding the relationship with the other categories addressed in this study, some of the healthy lifestyle profiles have nutritionists who accompany them on their own bio or in posts (images and videos), even presenting appointments and their prescribed diet. In other cases, we see people from these profiles along with professionals at events such as courses and fairs. We did not find relation between healthy lifestyle and obese or ex-obese person.

As in previous opinion leaders categories, they use several media, such as YouTube and Facebook, and participate in other Instagram profiles like joint projects with other users and personal communication projects. Many have their own website or blog, and some present the contents of the media in which they participate.

#### **4. Conclusion and future works**

Our article aimed to describe the online presence of three opinion leader categories (nutritionists, POLs and healthy lifestyle) on Instagram, as well as to analyze their characteristics, current practices, and relationships. We conclude that they are presented on Instagram, and use some common strategies among them to communicate and engage followers, such as contests and challenges. Informal talking about motivation and behavior change was observed. Sometimes, they use personal online presence, which is intimate for a vast audience. There are differences in their characteristics and practices. Nutritionists try to inform about diet, POLs, obese and ex-obese try to identify with their followers, and the healthy lifestyle try to inspire others.

The relationship between these leaders appears to be visible, as they act as partners, more than as antagonists, even though there is some suspicion. Nutritionists defend themselves using scientific content, but present their human side, showing that a balanced life is possible. Obese and ex-obese talk about traumas and its overcoming, and usually share emotion. Profiles of the healthy lifestyle category show daily routines and how much effort is needed to maintain the body.

Multiple resources are used, namely images and videos posts as well as answering questions and comments, showing opinion leaders abilities to use a variety of Instagram features. Social networks, like YouTube and Facebook, websites or blogs, are also used.

Food is highly explored and it exists images associated to recipes, in which leaders show how to eat and cook properly. There are few food presentations on obese and ex-obese profiles, in which other issues have a more prominent presence such as the relationship with food and the mindset-changing that can help with weighting loss.

In Brazil, the three opinions leaders' categories show another professionalized dimension. Some make their own brand of products or services on Instagram and disseminate them. In other cases, they work to advertise products and services for a third party. This may be due to a large number of followers and as a way to generate

income.

This preliminary study opens new paths to support the next steps of the ongoing research that frames it. The described exploratory content was originated from a netnography qualitative technique (23–25). The next step is to analyze other categories/profiles (like the chef, food diary, and physical educator). A quantitative approach will also be performed aiming to extend the understanding of the observed practices.

## References

1. O'Reilly T. What Is Web 2.0 [Internet]. O'Reilly. 2005 [cited 2017 Jul 1]. Available from: <http://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html>
2. Fox S, Duggan M. Health online 2013 [Internet]. Washington, D.C.: Pew Research Center's Internet & American Life Project; 2013. p. 1–55. Available from: [http://www.pewinternet.org/~media/Files/Reports/PIP\\_HealthOnline.pdf%0Ahttp://www.pewinternet.org/2013/01/15/health-online-2013/#](http://www.pewinternet.org/~media/Files/Reports/PIP_HealthOnline.pdf%0Ahttp://www.pewinternet.org/2013/01/15/health-online-2013/#)
3. Sarasohn-Kahn J. The Wisdom of patients: health care meets online social Media. Oakland: California HealthCare Foundation; 2008. p. 1–25.
4. Helm J, Jones RM. Practice Paper of the Academy of Nutrition and Dietetics: Social Media and the Dietetics Practitioner: Opportunities, Challenges, and Best Practices. *J Acad Nutr Diet*. 2016;116(11):1825–35.
5. Neimetz J-M, Berthoux B, Liu K. Social and mobile platforms: why should life sciences companies participate? Life Science Capgemini Consulting. 2012.
6. Sermo. Sermo Polls [Internet]. 2016 [cited 2017 Jun 1]. Available from: <http://www.sermo.com/media/polls>
7. Rogers EM. Diffusion of innovations. 5th ed. New York: Free Press; 2003. 487 p.
8. Madden H, Chamberlain K. Nutritional health messages in women's magazines: a conflicted space for women readers. *J Health Psychol*. 2004;9:583–97.
9. Dodds A, Chamberlain K. The problematic messages of nutritional discourse: A case-based critical media analysis. *Appetite* [Internet]. 2017;108:42–50. Available from: <http://dx.doi.org/10.1016/j.appet.2016.09.021>
10. Leggatt-Cook C, Chamberlain K. Blogging for weight loss: personal accountability, writing selves, and the weight-loss blogosphere. *Sociol Health Illn*. 2012;34(7):963–77.
11. Chung C-F, Agapie E, Schroeder J, Mishra S, Fogarty J, Munson SA. When Personal Tracking Becomes Social: Examining the Use of Instagram for Healthy Eating. In: *Chi 2017*. ACM; 2017. p. 1674–87.
12. Yan LL. Good Intentions, Bad Outcomes: The Effects of Mismatches between Social Support and Health Outcomes in an Online Weight Loss Community. *Prod Oper Manag*. 2017;22(5):3218–21.
13. Tikka P, Oinas-Kukkonen H. Contributing or receiving - the role of social interaction styles in persuasion over a social networking platform. *Pers Ubiquitous Comput*. 2017;21(4):705–21.
14. Christakis NA, Fowler JH. The Spread of Obesity in a Large Social Network over 32 Years. *N Engl J Med* [Internet]. 2007;357(4):370–9. Available from: <http://www.nejm.org/doi/abs/10.1056/NEJMs066082>
15. Powell K, Wilcox J, Clonan A, Bissell P, Preston L, Peacock M, et al. The role of social networks in the development of overweight and obesity among adults: a scoping review. *BMC Public Health* [Internet]. 2015;15(1):2–13. Available from: <http://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-015-2314-0>
16. Santarossa S, Coyne P, Lisinski C, Woodruff SJ. #fitspo on Instagram: A mixed-methods approach using Netlytic and photo analysis, uncovering the online discussion and author/image characteristics. *J Health Psychol* [Internet]. 2016;1–10. Available from: <http://hpq.sagepub.com/cgi/doi/10.1177/1359105316676334>
17. Rothman AJ, Sheeran P, Wood W. Reflective and automatic processes in the initiation and maintenance of dietary change. *Ann Behav Med*. 2009;38(SUPPL.):4–17.
18. Strien T van, Bergers GPA, Defares PB. The dutch eating behavior questionnaire (DEBQ) for Assessment of restrained , emotional and external eating behavior. *Int J Eat Disord*. 1986;5(2):295–315.
19. Viana V, Sinde S. Estilo Alimentar: adaptação e validação do questionário holandês do comportamento alimentar. *Psicol Teor Investig e Prática*. 2003;8(1–2):59–71.
20. Organization WH, Office R. Portugal. 2013;
21. Freberg K, Graham K, McGaughey K, Freberg LA. Who are the social media influencers? A study of public perceptions of personality. *Public Relat Rev*. 2011;37(1):90–2.
22. Gillin P. The new influencers: A marketer's guide to the new social media. Sanger: Quill Driver Books; 2009.
23. Kozinets R V. Netnography: Doing ethnographic research online. Vol. 29, *International Journal of Advertising*. 2010. 328-330 p.
24. Kozinets R V, Scaraboto D, Parmentier M. Evolving netnography : how brand auto- netnography , a netnographic sensibility , and more-than-human netnography can transform your research. *J Mark Manag* [Internet]. 2018;34(3–4):231–42. Available from: <https://doi.org/10.1080/0267257X.2018.1446488>
25. Langer R, Beckman SC. Sensitive research topics: netnography revisited. *Qual Mark Res An Int J* [Internet]. 2005;8(2):189–203. Available from: <http://www.emeraldinsight.com/doi/10.1108/13522750510592454>
26. Carrotte ER, Vella AM, Lim MS. Predictors of “Liking” Three Types of Health and Fitness-Related Content on Social Media: A Cross-Sectional Study. *J Med Internet Res*. 2015;17(8):1–16.
27. Jong ST, Drummond MJN. Exploring online fitness culture and young females. *Leis Stud* [Internet]. 2016;35(6):758–70. Available from: <http://www.tandfonline.com/doi/full/10.1080/02614367.2016.1182202>