



## Social networks feed the food supplements shadow market

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## Abstract

**Purpose.** The paper investigates the role of social networks in the Millennials decision-making process of illegal and unnotified food supplements purchase. The connections and interactions that (co) produce information are studied with a holistic of social sustainability perspective.

**Design/methodology/approach.** An exploratory qualitative multi-analysis research in two consecutive phases was conducted. Data from 23 semi-structured individual interviews were collected and a Netnographic analysis of Facebook virtual community was conducted. To simplify the complexity, the perspective of a single actor was adopted.

**Findings.** The results show that the decision-making process does not develop following the traditional sequence, social networks modify the wellness meaning creation process and reduce risk perception. Social networks introduce the use of similar experiences of others and online information and emotional support on unethical and unhealthy behavior.

**Research limitations/implications.** Due to the application to a social network, the results should be understood within this context. Extending the search with a survey is suggested.

**Practical implications.** The official information quality control, as a prerogative of public and professional health stakeholders and the medicalization of medicalization, contribute to the conscious development of their wellness meanings and values.

**Originality.** This work represents one of the first attempts to investigate the resources integration through social network in the pre-purchase decision-making process of unnotified and illegal food supplements. Unethical and unhealthy behavior develops through the interaction of actors, firms, influencers and individuals, in social networks.

**Paper type** Research paper

**Keywords:** Food supplement; social network; Millennials, unethical and unhealthy behavior

## INTRODUCTION

Food supplements are a global business, characterized by a multiplicity of natural and artificial products. Food supplements (also called dietary supplements or supplements) are commonplace in everyday life and their use is prevalent across demographics. The European regulation defines supplements as food products that integrate the customary diet and provide a concentrated source of substances with nutritional and/or physiological power and that are neither foods nor medicines (UE directive 2002/46/CE and Legislative Decree 169/2004). The same EU directive also identifies the maximum dosage of essential ingredients and the maximum daily intake (RDA recommended dietary allowances). Supplements are classified based on provided benefits and distinguished according to the following categories: (i) supplements for sports, (ii) slimming supplements, (iii) supplements for health and wellness; (iv) supplements for beauty and aesthetics and (v) supplements against aging (Franchini and Romagnoli, 2010).

In the last decades, the food supplements market has grown up to 14.1 billion euros in Europe, and Italy is the first market with 23.5% of market share (Federsalus, 2018). This market reveals

1  
2 consumption as a demographic, collective phenomenon. However, Italian Millennials are the primary  
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4 users, (18–24 years 38% market share and 25–34 years 46% market share) (Federsalus, 2017).  
5  
6 Women are the most active and involved in the information searching and are the most significant  
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8 multi-supplements segment (24% of total integrating consumers equal to 39% of value). Internet is  
9  
10 a significant sale channel for recognized, notified or codified supplements by national organizations,  
11  
12 such as the Ministry of Health for Italy or the Food and Drug Administration for the USA (in Italy  
13  
14 the Internet is the third sales channel with 9% of the total). Due to the supplement's regulation that  
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16 differs from country to country, generally lax and focused on production and packaging, on minimum  
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18 market standards, labeling and correct information and advertising messages, the majority of studies  
19  
20 conducted have inevitably a strong territorial orientation (Binns *et al.*, 2018) and behavioral  
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22 differentiation, mostly concerned United States (Nguyen *et al.*, 2019).  
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26  
27 Whereas food supplements cause a myriad of effects to the body, regulatory efforts as well as  
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29 ensuring the basic expectations of food safety of products must also reduce the potential risks arising  
30  
31 from the intake of certain substances. The lack of knowledge and uncertainty about the real functions  
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33 of these products and their effects on the body and health, support their potential abuse and the  
34  
35 consequent moral issues arising (Cardenas and Fuchs-Tarlovsky, 2018). Food supplements encounter  
36  
37 many thorns due to their lack of regulatory harmonization that has allowed the spread of unethical  
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39 behavior of companies, concerning information, ingredients and claims, and unethical and unhealthy  
40  
41 behavior of consumers.  
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46 Since their market entry in the early 1950s, food supplements have reflected the progressive  
47  
48 attention given to Complementary and Alternative Medicine (CAM). Previous research indicates that  
49  
50 health-conscious consumers are more prevention-oriented and more like to use supplements (Willis  
51  
52 and Stafford, 2016), than the others. Over time, people growing attention to health and wellness, as  
53  
54 well as free access to information have generated a radicalization and distortion of the meanings  
55  
56 attributed to human's health, especially regarding food supplements.  
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1  
2 The flow of people, through migration and travel, information and ideas, through the internet and  
3 social media, spread lifestyles all over the world and with them also insane behaviors that harm on  
4 health (Huynen *et al.*, 2005; Vaterlau *et al.*, 2015). Despite recognition that the communication  
5 channel is pivotal in enabling the (customer) co-creation process, empirical research investigating the  
6 influence of communication channels, particularly social media and internet, is limited (Mahr *et al.*,  
7 2014).  
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15 This study aims to contribute to filling the gap in the understanding of pre-purchase consumer  
16 behavior decision-making process, as related to the unnotified and illegal supplements and to outlines  
17 the dynamics that unfold inside a virtual community. Food supplements have an online collection of  
18 chaotic information that includes both official and reliable content and unsafe and unverified content  
19 (Siracusa and Petrelli, 2016). Furthermore, the regulatory gaps in the sale of online supplements have  
20 given rise to a shadow market, a mixture of unnotified and illegality products. The study focuses on  
21 the Millennials' wellness meaning-making and the information-seeking behavior, centered on social  
22 networks as shadow markets of information on unnotified and illegal supplements.  
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34 In this study, we consider supplements market with a holistic perspective (FAO, 2018), in which  
35 co-reaction and resource integration activities are developed that involve different actors and social  
36 forces (Akaka and Vargo, 2015), public and private food system and health systems actors, firms,  
37 influencers and consumers. An exploratory study was conducted according to two consecutive phases  
38 of qualitative data to gain a more holistic understanding of the aspects related to the development of  
39 unethical and unhealthy behaviors in the supplement market (e.g. Gummesson, 1991, Hill *et al.*,  
40 1997). To simplify the complexity, the perspective of a single actor was adopted, thus having the  
41 opportunity to identify the interaction between actors and otherwise latent institutional agreements.  
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## 55 **Literature review**

56 Although the well-established conception of food that configure it as a commodity has been  
57 questioned in different research fields, including those of medicine, sociology and marketing (Cronin  
58 *et al.*, 2005), the literature on food supplements is still fragmented and numerically limited. From a  
59  
60

1 holistic perspective of food system of food supplements, three areas of research can be distinguished.  
2  
3  
4 The first relates health and wellness meanings and self-determination health behavior. The second  
5  
6 relates to supplement social sustainability and consumer unethical behavior. The third relates the  
7  
8 social networks role on the health decision-making process.  
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14 *Health and wellness meanings, commodification and the configuration of new relationships between*  
15 *patient and physician*

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17 Routine behaviors were challenged to switch towards self-determination and choice behavior  
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19 (Crawford, 1980; Assadi, 2017). This cognitive and perception transformation has drawn the attention  
20  
21 away from a definition of health as the absence of disease, in which behavior reflects prevention and  
22  
23 treatment, to a definition of health as well-being (WTO, 1948; Laffrey *et al.*, 1986). The well-being  
24  
25 paradigm refers to a lifestyle that means to realize all those actions that contribute to maintaining or  
26  
27 improving the level of wellness (body-focused dependent upon the physical, social, and mental state),  
28  
29 personal growth and individual achievement (Walker *et al.*, 1987). Although the research focused for  
30  
31 a long time on the medical aspects of diet and exercise (Kraft and Goodel, 1993), recent years have  
32  
33 seen food become one of the most critical topics in the field of wellness. Wellness is achieved both  
34  
35 practicing sport and fitness activities but increases the belief that supplements, such as slimming pills  
36  
37 and fat-burning herbs, are necessary to achieve the desired results rapidly.  
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42 Even here, however, research has been conducted as a sectoral extension of similar research  
43  
44 conducted in other industries (Cavusoglu and Demirbag-Kaplan, 2017), rather than as a research field  
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46 to be defined from a sustainable systemic perspective and according to a holistic approach to  
47  
48 consumption (e.g. Younesi and Ayseli, 2015).  
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51  
52 The neoliberal policies advocate the dismissal of the public in the healthcare services provision,  
53  
54 implying the redefinition of the relationship between patients and physicians and the conversion of  
55  
56 patients into health consumers (McGregor, 2001). Lupton (1997) introduces the commodification of  
57  
58 health in which the relationship between physician and patient becomes the exchange between a  
59  
60 supplier and a consumer of services. At least until digital media and social networks came along.

1  
2 They have become the primary agents in the definition of health and wellness (Olof Lagrosen and  
3  
4 Grundén, 2014). The physician-patient relationship, as well as health and wellness perception and  
5  
6 consumption, have moved from the medicalization dimension to the medialization dimension  
7  
8 (Hjarvard and Petersen, 2013; Moorhead *et al.*, 2013). Wellness, as well as having health and  
9  
10 aesthetic implications, has become a social construct to meet the need to feel adequate and look better  
11  
12 (Feinstein *et al.*, 2013). Health decision-making process literature review refers to healthcare  
13  
14 decisions, wellness and well-being, and the role of supplements in the achievement and maintenance  
15  
16 of a healthy lifestyle. Scholars demonstrated the positive relationship between food supplements  
17  
18 consumption and feeling responsible for one's own health (Willis and Staffor, 2016). However, this  
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20 does not imply that consumers are aware of the regularity or origin of the products.  
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### 27 *Ethics and social sustainability in the food supplement consumption*

28 The literature review allows the identification of different cognitive approaches that explain the  
29  
30 consumption and/or abuse of supplements (Arent and Lutz, 2015). Furthermore, the literature review  
31  
32 highlights some functional and symbolic factors according to which consumers buy products that are  
33  
34 potentially dangerous for their health. Among these are the ambition for an ideal body form in as  
35  
36 short a time as possible and the improvement of sports performance.  
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40 The lack of regulatory harmonization has created a legislative gap that allows firms, wholesalers  
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42 and online distribution platform to sell their products online even in countries where these are  
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44 unnotified or are illegal. Not surprisingly, research on different aspects of ethical business practices  
45  
46 is growing. Until the 1990s, research on unethical behavior focused on firms with an economic and  
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48 environmental orientation, on food safety and prices. Then it focuses on consumer ethics behavior  
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50 (Schlegelmilch and Öberseder, 2010).  
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### 56 *Social networks in the health decision-making process*

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58 The role of social networks in decision-making processes is one of the most widely discussed  
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60 topics in recent years, mainly referring to the development of consumer behavior in marketing.

1  
2 However, there is a lack of depth regarding the relationship between the health decision-making  
3 process and choices and social networks as information sources. Social networks are, therefore, a  
4 primary relevance in health-related choices (Sadovykh *et al.*, 2015). But the enforcement of the  
5 decision-making process regarding food supplements requires further investigation. The  
6 overexposure of images and contents can influence people's emotional states: generate a mechanism  
7 of imitation, adaptation, or competition (Vogel *et al.*, 2014), a process enabled by an influencer.  
8  
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10  
11 Social networks are sources of functional and cognitive information: they help to find relevant  
12 information about health and wellness; to evaluate the alternatives, options, and choices; to observe  
13 and share the decision-making process, to identify the preferred resources to implement and to  
14 receive and share feedback (e.g. Laurent and Kapferer, 1985; Schaninger, 1976). The degree of the  
15 product's desirability and the perception of control deriving from comparison and different  
16 information sources, although not certified, diminishes the perception of risk. Consumer risk  
17 perception refers to two dimensions: product desirability and control perception. First, popular  
18 products are perceived as having fewer risks and more benefits. While for the second dimension,  
19 Wansink (2004), demonstrates that consumers are led to believe that they have control and knowledge  
20 about a product to perceive its benefits. However, a perceived high level of control can lead to a low  
21 perception of risks.  
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25 De Jong *et al.* (2003) theorizes that to generalize consumer characteristics of functional food and  
26 supplements, it is necessary to focus on lifestyle factors, as well as consumers' attitudes, norms, and  
27 knowledge related to dietary patterns and health risk perception profiles.  
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31 Age is a discriminating variable of consumer behavior in the wellness market (Othman *et al.*,  
32 2011). Attention to a healthy lifestyle grows with increasing age. Vaterlaus *et al.* (2015) found  
33 substantial differences in consumption habits and consumer behavior in Millennials as compared to  
34 those of other demographic groups. This generation is, therefore, the most inclined to use social media  
35 as an information research source (Mangold and Smith, 2012), a social comparison source, and an  
36 arena of involvement (Eastman *et al.*, 2014). Their health idea is the outcome of querying multiple  
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2 sources, from traditional ones (physician-patient, film, television, newspapers, etc.) to digital  
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4 resources (platforms, blogs, social networks and forum health discourses). Millennials are the most  
5  
6 oriented generation to purchase of the online supplements (Cavusoglu and Demirbag–Kaplan, 2017).  
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9 The literature review showed poor attention to the online decision–making process of unnotified  
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11 and illegal supplement and the influence of social networks in the pertain information–seeking  
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13 process (Saddovykh *et al.*, 2015, Egan *et al.*, 2011). From these considerations, the following study  
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15 aims to contribute to filling the gap referring to (i) behavior in the decision–making process  
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17 concerning food supplements purchase (ii) the role of social networks within the unnotified and illegal  
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19 supplement market.  
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## 25 **Methodology**

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27 Adopting an exploratory approach, a qualitative multi–analysis in two consecutive phases was  
28  
29 conducted, using both semi-structured individual interviews (Cohen and Crabtree, 2006, 2008) and a  
30  
31 Netnographic analysis (Kozinets, 2010). The semi-structured individual interviews were carried out  
32  
33 in September, October and November 2018, over the phone or face to face (depending on the  
34  
35 interviewee's availability), recorded, transcribed and analyzed with manual hierarchical coding  
36  
37 process according to Miles *et al.* (1994) qualitative data analysis model.  
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41 The respondents were selected by a snowball sampling technique: through Instagram and Facebook  
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43 chats some requests to participate in the research were sent, and those who accepted, in turn,  
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45 suggested other people include in the sample. The process was interrupted when further information  
46  
47 couldn't be obtained, reaching a total of 23 interviewees (13 females and 10 males). The selection  
48  
49 criterion of the interviewees was not random but people who had certain requirements have been  
50  
51 selected: (i) ages between 18 and 40 years; (ii) conducting a healthy lifestyle; (iii) active social media  
52  
53 users.  
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56  
57 The interview began with a few general questions to make the conversation as informal as possible  
58  
59 and to further explore (i) the socio-demographic and cultural characteristics. Subsequently, it  
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1  
2 continued with questions relative to (ii) consumption of food supplements; categories of  
3 consumption; motivations and expectations; frequency of purchase and use; and the sources of  
4 information. Finally, the analysis was deepened by questions concerning (iii) source information and  
5 purchase channel and online promotion; the trustworthiness of purchase from international sites; the  
6 use of the social networks for the seeking–information process, alternative evaluations and depth of  
7 knowledge of uncodified and illegal supplements.  
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16 The second research phase consecutive to the first, focused on the social networks (Rheingold,  
17 1993), as a source of information. To stress the Millennials behaviors, a Netnographic analysis was  
18 conducted on a Facebook group and focused on conversations about unnotified and illegal  
19 supplements, using a pure approach, and non–intrusive participant observation.  
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25 Through the use of keywords on the platform Facebook (the social network most cited by the  
26 interviewed sample) a private group was selected, according to the criteria indicated in the literature  
27 (Kozinets, 2010): (1) the relevance of community respect to the cognitive goal; (2) recent  
28 communication activities among its members; (3) interactivity among the participants; (4) the wealth  
29 of information offered by the community.  
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36 The selected Italian Facebook group has 3,697 members (September 2018), two online sellers  
37 affiliate (Musclenutrition and Prozis) with a high engagement level (Neiger et al., 2012).  
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41 Two research queries guided the analysis: (1) to explore decision-making process – seeking–  
42 information and alternative evaluation processes – related to the purchase of unnotified and illegal  
43 supplements; (2) to outline the dynamics that unfold inside a social network.  
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48 According to Kozinets (2010), Netnographic analysis followed four steps (i) the explorative phase:  
49 in which a community, relevant to the study objectives, was identified; (ii) entrance into the social  
50 network: during which a friendship request to the group admins was sent; (iii) gathering and analysis  
51 of the data: during which we observed the interactions and conversations for a few weeks according  
52 to the lurking technique (presence of the researcher not revealed to the group members). For the data  
53 collection a kind of electronic logbook was kept, in accordance with the group administrator, in which  
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2 fragments of conversations and notes on the impressions were collected; (iv) interpretation of the  
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4 collected data: a hermeneutic approach was used to detect some significant relations in the collected  
5  
6 information: by identifying some typical users and/or symbolic figures, and recurrent units of  
7  
8 significance, that express different roles, attitudes and needs of consumer types.  
9

## 13 Results

14 The study investigated an under-explored phenomenon, allowing the identification of some  
15  
16 relevant results both in the first part and the second part of the analysis.  
17

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19 All respondents were chosen because they use food supplements, however, frequency analysis has  
20  
21 shown that they are heavy users of health and wellness, beauty and cosmetics, sport and weight loss,  
22  
23 (19/23) buy supplements monthly and use them daily (19/23).  
24

25  
26 Three different behaviors related to supplement use have been identified: (i) those who know they  
27  
28 are exceeding the RDA and continue with this practice; (ii) those who do not know they are exceeding  
29  
30 the RDA and exhibit a passive behavior; (iii) those who know the risk of exceeding the RDA and are  
31  
32 informed before taking food supplements, thus maintaining an active and conscious behavior.  
33

34  
35 According to Sadovykh *et al.* (2015), the pre-purchase decision-making process is structured in  
36  
37 information-seeking, alternative evaluations and choice. However, the process does not develop  
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39 following the traditional sequence, and Millennials use the Internet and social networks as a source  
40  
41 of information, as well as a place to build relationships, share similar experiences with others, find  
42  
43 emotional support to achieve personal goals, accept or improve the perception they have of  
44  
45 themselves. An example of relationships and experience sharing is presented below:  
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49 *“A few months ago, I joined a Facebook group that I consider trustworthy for sharing (sic) information, questions*  
50  
51 *and doubts if I decide to try a new product”*. Respondent (18/23).  
52

53 Two sub-categories have been identified from the coding of answers related to the category of the  
54  
55 online purchase of unnotified and illegal supplements. The first sub-category trusts intermediaries  
56  
57 (e.g. Amazon, Prozis, Musclenutrition, Myprotein) and does not have enough knowledge of  
58  
59 unnotified and illegal supplements. The purchase of these products happens unconsciously. An  
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1  
2 example of trust and lack of knowledge is expressed in the following fragment:  
3

4 *"I don't know them, but I trust the site where I buy them, nothing is written, so I think it's safe"* (man 39 years old) “

5  
6 Instead, the second sub-category shows full awareness of the existence of this market and the belief  
7  
8 that these supplements are more effective, as expressed in the following fragments:  
9

10 *"I know what they are, anyway if you buy on reliable sites and brands I don't see where the problem is"* (woman 28  
11 years).

12  
13  
14 *" Yes, I know what they are, the Pharmaceutical regulation is much more restrictive in Italy than  
15 the German or American one. It depends on the products, but however most are more effective, you can note  
16 immediately results...."* (man 34 years old).  
17  
18

19  
20 According to Taylor (2014), search engines such as Google have become sources of production  
21 and information consumption spaces without a source control system provided by intermediaries  
22 (gatekeepers). However, qualitative analysis reveals that for the information-seeking process for  
23 supplements, e-commerce marketplaces such as Amazon, Prozis, Musclenutrition, etc., are preferred  
24 because they are considered trustworthy. E-marketplaces are also considered more authoritative for  
25 product research.  
26  
27

28  
29 In the second part of the qualitative research through a Netnographic analysis of Facebook virtual  
30 community conversation, we focused on consumers aware of the existence of a parallel market,  
31 looking for active information about them, as they believe in real effectiveness of these supplements.  
32  
33

34  
35 The analysis has shown that in the same social network both different types and dynamic users  
36 coexist. Four symbolic figures (Thompson, 1997) were identified: i) Insiders: they are reference  
37 figures within the group (often the community administrator), their role is to help the neophytes,  
38 directing them towards the "best" purchase choice and informing about the possible contraindications  
39 of the product; ii) Naives: they are very active within the community, but they don't pay much  
40 attention to potential risks, tending to evaluate the product in terms of effectiveness, rather than  
41 security; iii) Newbies: fascinated by this world, they are held back by the side effects of these  
42 supplements. They do not have a strong social bond in the community, tending to ask many questions  
43 or to remain on the sidelines merely by observing; iv) Minglers: mingle in the community specially  
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2 to socialize with group members. They belong also to other virtual communities (Fig.1).

3  
4 *Figure 1 Symbolic Figures, community ties and centrality of consumption activities*

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7 INSERT FIGURE 1

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9 From the analysis of the conversations, recurrent units of significance, that are consumers attitude  
10 or needs, emerged; they can be summarized in the following:

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12  
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14  
15 1- "Give me some advice", referring to the information-seeking phase. This theme recurs in the  
16 conversations of the Newbies and the Minglers. Both they seek answers to their concerns and doubts  
17 that they can receive only from the "experts" of the group. Examples are the following posts:

18  
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20  
21  
22 *"Good morning, yohimbine really works like slimming or are they just rumors? In case which you advise*  
23 *me of to buy?"*

24  
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27 *"Hi everyone, I'm new and I joined because of a month I attend a gym, I have been offered supplements*  
28 *protein but I'm a little reluctant to use because they might overload the kidneys, what do you recommend? "*

29  
30  
31 2- "American (products) are better", concerning those who seek solutions in the virtual community  
32 to purchase unnotified or illegal substances, mostly American. Insiders and Naive regret not being  
33 born overseas. They play the role of inquisitors, blaming Italians of their mental closure, due to the  
34 pharmaceutical lobby in our country, unlike in America. Examples are the following posts:

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41 *"This infographic fully represents the mentality overseas and the backwardness of our people [...] here with*  
42 *us the only duty-paid supplements are [...] Everyone worried about toxicity, then they go out and eat crap and*  
43 *at every cold, they stuff themselves with drugs [...]"*

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51 *"I will be honest, I no longer follow the Italian groups, except those I work with [...] they bore me. I joined*  
52 *a lot of US groups and trying to spend more time to enrich me with content [...]. Stack with Dbol, Dhea, Lgd,*  
53 *S4 [...] the more I read, the more I realize that we are back light-years [...]"*

54  
55 3- "I do it by myself", relating to users who exchange information to compose the unnotified or  
56 illegal supplements on their own. They use substances purchased from a herbalist, extracted from  
57 generic drugs, or purchased from international sites. It is a very recurrent theme in the Naives  
58 conversations and among some Insiders who, however, are more cautious about it having a broad  
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1  
2 knowledge of the subject. An example is:  
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5 *“The stack homemade,” consisting of 25mg of ephedrine, 200mg of caffeine, and 300mg of aspirin (called*  
6 *Stack ECA);*  
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9 4- “I care about you”, referring to the group's advisors who provide advice, make suggestions, and  
10 stimulate discussions. Insiders, but also Naives, share lived experiences, recommend supplements,  
11 unnotified or illegal, and related links where they can be purchased. The possibility that they are  
12 ambassadors of the very sites that they link to is not excluded. They don't believe the "rumors" of  
13 the scientific community about it the side effects of these supplements, in fact often test the product  
14 on yourself before talking about it inside the community. The following fragments are examples of  
15 this unit of significance:  
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26 *"Yohimbine is effective because it is an snc stimulant [...] overall it is illegal in Italy, so beware of pressure because it*  
27 *raises "*  
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30  
31 *"Cordyceps sinensis: it is a mushroom used in Traditional Chinese Medicine. Among its faculties, there is that of*  
32 *improving VO2max aerobic capacity and resistance [...] I used it with moderate success even pre-workout [...] available*  
33 *on prozis.com/W5k "*  
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#### 40 **Discussion and managerial implications**

41 By the 1970s, health domain studies had extended beyond the boundaries of medicine to enter in  
42 the field of social sciences with the expansion of medicine into everyday life domains and the  
43 introduction of the well-being. From a research perspective, the concept of wellness is the result of  
44 a process in which an interdisciplinary approach converges in concerns the domain of health,  
45 lifestyles, behaviors and, of course, consumption.  
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52 Wellness relates to lifestyle applied to behavioral models based on individual responsibility and  
53 the self-determination to choose one's behaviors. Previous research focused on both personal  
54 behavioral aspects (Holt, 1997), relating lifestyles and consumption, and the influence of the socio-  
55 cultural environment in the development of beliefs and behavior (e.g. Cockerham, 2017).  
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1 Health decisions are of primary importance and are made to minimize risk and maximize  
2 effectiveness. For this purpose, the pre-purchase process concerns the consultation of multiple  
3 verified sources (Taylor, 2014). However, the involvement and the sources depend on health meaning  
4 and wellness as it is perceived by the health consumer (Sadovykh *et al.*, 2015). Social networks are  
5 a source of information that reduces risk perception and bias about product performance, more  
6 relevant than security (Emilien *et al.*, 2017, Ueland *et al.*, 2012).  
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15 Past research demonstrated the value co-production in online support communities for diseases  
16 with a high psychological impact, through the sharing of experiences and actions between patients or  
17 sick family members. Our research has found that social networks have included in the decision-  
18 making process the use of similar experiences of others and online emotional support. These  
19 experiences, provided by unknown, are shared and used to (co) create their own meanings of wellness  
20 and lifestyle (Sadovykh *et al.* 2015). Research has also shown that social networks are a trigger for  
21 the resource integration processes involving more actors (companies, influencers, moderators,  
22 individuals, coaches). Sharing experiences and lifestyles, social networks enable co-creation  
23 processes aimed at purchasing, enhancing or self-producing unnotified or illegal supplements, to  
24 improve individual health and wellness, beauty and aesthetics, sports performance or weight loss.  
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38 A morally harmful, unethical and unhealthy behavior that has as protagonists aware or not aware  
39 of some actors, including group administrators and the participants themselves. Unethical behaviors  
40 are influenced by social and cultural factors (Agnihotri and Bhattacharya, 2019) and by shared beliefs  
41 and information that effective sports and food supplements are those that provide results in a short  
42 time. The countries' regulations are not harmonized, meaning that the sale of the same supplement  
43 could be prohibited in one country and legal in another. Since supplements are non-medical  
44 products, their purchase does not require a prescription, and online sales allow their maximum  
45 distribution even in countries where they are unnotified, thus avoiding control channels.  
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57 Social networks modify the creating process of wellness meaning (Moorhead *et al.*, 2013) and the  
58 production of uncontrolled (not checked) information. As mentioned, the medicalization of  
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2 information involves a formal review of physicians (medical authorities), while the medialization of  
3  
4 information implies a lack of content review (user-generated content) or the authority of influencer  
5  
6 review (influencer authorities) (e.g. Conrad and Leiter, 2004; Grant *et al.*, 2010).  
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9 The present research identifies two main practical implications. The first implication relates to the  
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11 quality of online information and involves health policymakers, health institutions, physicians, and  
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13 professionals. For consumers, social networks, and e-marketplaces provide useful and reliable  
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15 information, influencing decisions and choices. Social networks, however, are a source of information  
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17 relating to wellness, data that are unverified and whose quality is not guaranteed. From a practical  
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19 point of view, this means medializing the medicalization, with the involvement of doctors,  
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21 nutritionists, and influencers. The aim is to educate the consumer and avoid the dissemination of  
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23 dangerous information such as “illegal supplements are more effective,” without considering the side  
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25 effects.  
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29 The second implication involves the role of people in the choice of supplements. Physicians and  
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31 nutritionists consider the consumer as a passive subject, a recipient of products and communication  
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33 campaigns, relegated to the patient position. Meanwhile, supplement companies and marketplaces  
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35 compete on online channels to reach consumers through messages focused on the effectiveness and  
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37 quickness of supplements' effects. For Millennials, people have an active role in contributing to the  
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39 creation of their meaning of health and of useful behaviors to achieve wellness. With their lifestyles  
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41 and behaviors, influencers can play an active role and influence people's behavior regarding food and  
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43 sports preferences.  
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## 50 **Conclusion**

51 Since their introduction, food supplements have been considered an expression of alternative  
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53 medicine, aimed at improving and maintaining physical wellness. This healthcare-oriented approach  
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55 has made the topic unattractive in the marketing studies field (Crié and Chebat, 2013) and has not  
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57 allowed scholars to intercept the change in wellness lifestyle meaning and consumer behavior,  
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59 specifically digital health perception and the role played by social networks for Millennials. Despite  
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1  
2 the policies implemented by governments that have tried to stimulate responsible behavior regarding  
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4 the adoption of healthy lifestyles, many people today still tend to assume risky behaviors associated  
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6 with the continuous desire to appear healthy, transcending the real meaning of health. This study  
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8 deepens the intersection between wellness meaning, expressed through a healthy lifestyle and the  
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10 related deliberate and autonomous consumption choices (McCann, 2005), aimed towards the  
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12 improvement and modification of one's own image. (e.g. Olof Lagrosen and Grundén, 2014;  
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14 Thompson and Troester, 2002).

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18 The research is not absent from limitations. Although this is an exploratory study, the research was  
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20 conducted on a single social media, Facebook. Integrating with other social media, Instagram is  
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22 suggested. Secondly extending the research field to traditional sales channels, pharmacies. This also  
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24 means narrowing the research field to unnotified supplements sold in pharmacies as over the counter  
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26 products. The qualitative exploratory survey has provided some interesting evidences that it would  
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28 be better to further investigate with other studies through the adoption of an extensive mixed  
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30 approach.  
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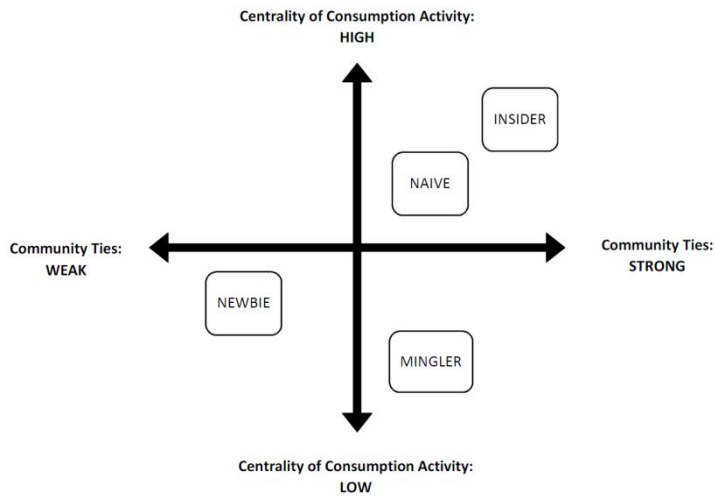
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Figure 1 - Symbolic Figures, community ties and centrality of consumption activities



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