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Health Support in the Palm of Your Hand: The Role of Technology in Achieving Health Goals

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Additional information is available at the end of the chapter

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Abstract

Smartphones have transformed how individuals engage with each other, their leisure time, their work, and even the way they take care of their health. With a qualitative study, we explore how Smartphone apps and social network sites (SNSs) are being used by individuals who want to take care of their health. Findings suggest that individuals are taking advantage of digital technologies to improve their wellbeing in several manners: they use wearable devices to monitor their health and track their physical activity, keep in touch with doctors and health coaches using instant mobile messaging applications, and join virtual communities seeking for advice and support. Being a member of these communities provides certain advantages and rewards that motivate individuals to act on their good intentions toward their health. Given the high rates of adoption of digital technologies, specific social marketing campaigns can be designed to influence health behavior, including health promotion and interventions to help individuals achieve personal goals and improve the quality of their life.

Keywords: behavioral economics, health goals, mHealth, smartphones, social support, social networks

1. Introduction

Individuals set health-related goals all the time. While some of them want to quit smoking, others are seeking to run a half marathon, lose some pounds, or keep their diabetes in check. According to the theory of planned behavior [1], individuals have all the necessary resources, skills, and abilities to perform the behavior at will. However, successful behavior change does not happen at once. For some, a little nudge is needed to encourage them to take the required

steps to attain a health-related goal [2]. Technology, and specifically Smartphone Apps and wearable devices can provide the incentives, feedback, and information individuals need to take their health into their own hands and improve their wellbeing. At the same time, social support can also become a tool to help those individuals who are willing to change their unhealthy behaviors, but need some encouragement and instrumental assistance to reach their health goals [3], such support can be provided face-to-face, or with the use of digital technology that allows individuals to gather in social network sites (SNSs) to seek and receive health advice and encouragement.

To gain a deeper understanding on how individuals use technology and social network sites to improve their health, a qualitative study was conducted in three stages. Phase 1 includes a netnography on two health-related Facebook communities conducted for a six-month period. In the second phase, in-depth interviews were conducted with five bariatric surgery patients. As part of their recovery, they created a Whatasapp and a Telegram group to receive encouragement and provide tips to keep the weight off and eat balanced meals. In the third phase, in-depth interviews were conducted with individuals who use their Smartphones as tools to monitor their health-related activities. All in-depth interviews were recorded, transcribed, and analyzed; for the netnography online, data were captured in text files using word-processing software, photos, and the other images published by SNS users were captured as screen shots of the computer screen as they appeared online [4, 5]. Then we conducted a content analysis that allowed us to gain a better understanding of how individuals make use of digital technologies to take care of their health issues.

In this chapter, we seek to present our findings and illustrate on the use of technology as a tool to increase health and wellbeing. In the first part, we explore key concepts regarding the use of digital technologies and present some theoretical bases of social support and behavioral economics; finally, we describe the findings of our qualitative study to illustrate how individuals are using the Internet and digital technologies to improve their lifestyle.

2. Digital technologies and mHealth

Most individuals cannot imagine leaving home without their mobile phones. Nearly all adults in the US now have cellphones [6] and half of those are smartphones. In countries such as Australia, Italy, China, the United Kingdom, and South Korea, smartphone penetration reaches almost 70% of the adult population [7], while the adoption rate of smartphones is less than 30% in places such as Mexico (20%), Egypt (26%), Argentina (24%), and Brazil (14%) [8].

As smartphones and tables provide consumers with more access to content and multimedia features, consumers' habits are being transformed around the world. Such devices are being used to play games, shop, connect with social networks, and even for taking care of health issues. In fact, Smartphones and other ubiquitous technologies can be the solution in providing consolidated information in an understandable and meaningful form that will actually help people to make better choices [9].

Nowadays, individuals are demonstrating an active interest in health issues and moving from being patients to being consumers of a vast variety of health products and health services. Of those, a good number (67%) are interested in using online technologies and new media to improve their health and wellbeing [10]. Interest is also high in using a device to monitor fitness and wellness goals as well as for managing specific health conditions, like diabetes. As many as 41% of consumers are interested in using an app to set goals and monitor their progress as well as get gentle reminders that they need to get up and begin their exercise routine, and 38% of smartphone users consider their device as an essential tool for finding health and medical information [11, 12].

With the widespread use of mobile technologies to support the achievement of health goals objectives, the World Health Organization has come with a new term: mHealth; to refer to the health practice supported by mobile devices and its applications. mHealth apps can be divided into two categories: health and fitness apps (e.g., MyFitnessPal, MyNetDiary, LoseIt) that help consumers monitor their healthy activities; and apps that pair with wearable devices and transmit data to a dashboard (e.g., Nike Fuel Band, FitBit, Apple iWatch, BellaBeat). The data can be used both by health care providers and patients to view trends, patient events (e.g., an asthma attack), and adherence to specific programs (e.g., use of medication). Usually, the apps provide users with weekly reports summarizing their experience and programs and providing educational content and interventions to help them achieve their health-related goals [12, 13]. For those consumers seeking to improve their health, digital technologies and the Internet provide three major benefits: immediate access to information, health-tracking tools, and virtual communities for support [14].

Even though the dashboard by itself is useful for providing specific data for the user (e.g., number of miles walked or amount of calories consumed), the feedback provided can help individuals to adhere to new health-related habits if it is designed using concepts of behavioral economics, which implies the use of challenges, rewards, social norms, and visual elements, among other features to motivate individuals to adhere to a new routine or lifestyle [15]. At the same time, previous research suggests that digital technology will provide better results if it is combined with social encouragement and collaboration from peers facing a similar situation [16], therefore, the importance on learning about social support.

3. Social support

Social support groups have been present for many decades. It was in the early 1980s when a new social movement conformed by individuals seeking for social support to alleviate or mitigate the effects of their overconsumption patterns (e.g., Alcoholics Anonymous, Overeaters Anonymous) emerged [17]. Support groups are voluntary affiliations, formed by peers who rely on the expertise and testimonials of members, who provide each other with mutual assistance, feedback, and methods to deal with their problems [18].

And even though, social support groups began with gatherings in church basements and school meeting rooms, they have moved to SNS, where there is no fixed schedule for the

meetings, physical contact, or face-to-face interactions full of embarrassment for confessing in the middle of a circle of peers one more missed session at the gym, or devouring a big bowl of ice cream each night [19]. Nowadays, encounters take place online, using the advances of digital technology like Facebook groups, which allow meeting peers who share similar values and goals, and who have joined the digital communities to receive the much-needed social support.

Individuals who use online communities can chat on the website, write about their health-related problems, and support each other with specific advice. In certain communities, members can update their health information and receive tailored suggestions, such as daily calorie intake and customized exercise plans, as well as motivational messages from their friends to help them adhere to their goals, or receive encouragement when they are ready to re-start their exercise routine after a relapse; with the advantage of remaining anonymous or using nicknames that will protect them from embarrassing moments and hard critics [20, 21].

One of the advantages of online communities is that they are customized for specific needs. Usually, they are characterized according to the activity they provide (e.g., social support, health advice), the people whom they serve (e.g., breast cancer survivors), or the technology that supports them (e.g., linked to a wearable device). In these communities, individuals can find and provide four types of support: (1) emotional (e.g., friendship, trust, empathy); (2) instrumental (tangible aid); (3) informational (e.g., advice or suggestions); and (4) constructive feedback; which in sum become a form of social capital of high value for individuals [3].

Even though, SNSs allow different types of interactions and relationships, what distinguishes social support from other interactions are some specific characteristics: social support is always intended to be helpful, is consciously provided in an interpersonal context of caring and respect, and in the case of informational support, it can attempt to influence the behaviors and decisions of the receiver [3].

4. How individuals make decisions

According to standard economic theory, individuals are fully rational when making decisions, they try to maximize utility and when given information, they are able to make optimal decisions. But behavioral economics (BE) suggests otherwise: consumer behavior is complex, people sometimes make irrational choices, and their behavior does not follow the predictions of economic models. Most people are risk averse and prefer to make decisions based on heuristics or mental shortcuts to reduce efforts and avoid hassles [22]. They also are motivated by rewards and respond easily to incentives and nudges. A nudge is any factor that significantly alters people's behavior in a predictable way. The nudge can be designed by a choice architect, who has the responsibility for organizing the context in which people makes decisions. The nudge can be as simple as the use of specific colors. Most drivers know that they have to stop when they see a red light, and keep driving their cars if the light turns to green. This common knowledge —and way of nudging—has then moved to another areas of people's life, for example, with the use of traffic lights, food labels, and graphics to indicate the energy

consumption in the household, social marketers attempt to design and use easy to understand tools to educate and orientate consumers and help them in making wise choices [2].

Besides the nudges, a good way to help individuals to improve their performance is to provide them with prompt and specific feedback, that will help them learn when they are doing well and when they are making mistakes or moving away from their goals. Feedback can assist individuals in monitoring their health-related goals and help them form new habits and internalize specific behaviors. Feedback that includes action steps to achieve a goal or provide comparative information is considered more useful for people. At the same time, a good choice architect needs to provide the right incentives or rewards in order to motivate individuals to maintain the desired behavior. Finally, people also tend to measure their performance and wellbeing in relative terms, by comparing with others in similar situations and trying to comply with social norms that reflect the behaviors and attitudes commonly accepted by a social group [2, 23].

5. Application

In their quest for health and wellbeing, people are turning to technology to reach and maintain their health-related goals and improve their lifestyle. It seems that nowadays, the Internet, the Smartphones, and even jewelry and clothing apparel play an important role in managing specific health conditions. In this section, we describe how digital platforms and technology provide advantages to individuals who need support to reach and maintain their health goals. First, we illustrate how SNS have become commonplace for individuals who seek physical wellbeing and address their need for social support. Second, we describe how patients are using mobile messaging applications to receive instrumental and informational support. And third, we explore the motives to use wearable devices and health monitoring apps.

5.1. Facebook communities

Worldwide there are over 1.79 billion people using Facebook each month. On average, each individual spends around 20 minutes in each visit, and almost 93% of Facebook users reach the SNS from their mobile phones. With more than 650 million of groups available on Facebook, nowadays, individuals have a vast offer of communities where they can meet with virtual friends who share common interests and causes [24]. Online support groups like Weight Watchers, Alcoholic Anonymous, and numerous others provide an adequate environment for voluntary affiliations and facilitate the pursuit of wellbeing with different tools and features that allow individuals to share their fears, doubts, and struggles while trying to achieve a healthier lifestyle.

5.1.1. *The method*

To shed more light on how individuals are using SNS to provide and receive the four types of support, we conducted a participant netnography in two different Facebook communities. The first one related with dieting (Weight Watchers), and the second one regarding physical

activity (Rapport Runners). The selected communities are highly interactive, heterogeneous, and provide rich data for analysis, as suggested by experts on this qualitative methodology [4]. Members of the two communities are active, constantly posting questions and answers, as well as uploading photos and videos.

To begin the netnography, one of the authors became a participant-observer, interacting as full participant in the local culture, contributing with comments and receiving feedback, always ensuring the ethical treatment of the data posted by the members of the community [4]. The unit of analysis consisted of two random discussion threads containing one initial post by a support seeker and several subsequent response posts published by support providers. As the study evolved, we selected other discussion threads. Online data were captured using word-processing software for further content analysis, and photos and other images were captured as visual images to be also analyzed. A qualitative content analysis was then conducted to identify potential themes, form categories, and classify participants into different segments.

5.1.2. *The findings*

The content analysis reveals that the SNSs under study offer a virtual community, where individuals can find encouragement, answers to specific health-related questions, and applause from virtual friends who cheer them up when they attain their goals. Members of the community were classified into two main categories: support providers and support seekers. Each category was then divided into subcategories based on specific traits and characteristics of participants.

Support providers were subclassified into three categories: (1) experts (e.g., doctor, health coach, nutritionist); (2) ordinary members of the community (i.e., virtual friends and acquaintances); and (3) opportunistic (i.e., individuals offering different products for sale, such as vitamins, diet pills).

While support seekers were divided into six categories: (1) anxious and fearful (i.e., individuals afraid of diseases); (2) careless and free (i.e., those individuals who expressed interest for feeling good, avoid stress, and have fun); (3) body conscious (i.e., centered in their looks and physical appearance); (4) techies (i.e., individuals who use specific apps to monitor their health and physical activity, and post their achievements in the SNS); (5) eternal dieters (i.e., individuals who seem to be stuck in their weight loss program and express their failures online); and (6) the window shoppers: the passive individuals that barely post any question or comment but take advantage of the “Like” feature of Facebook. They benefit by reading the posts published by other members of the community and show their interest and agreement by “Liking” those comments that are meaningful for them.

In the majority of posts, the initial conversation was phrased as a question or as a request for advice. Participants usually referred to the difficulty to stick to their goals (e.g., “I want to eat healthy, but I do not like vegetables, do you have any healthy recipes.”); their lack of knowledge regarding a health issue (e.g., “Can I reverse my diabetes if I lose some weight?”), or their fears (e.g., “Will I hurt my knees if I start running? I am really overweight.”).

Given that the SNSs studied have a specific target, the online environment makes it easier for participants to receive advice and encouragement from peers who are going through similar experiences, providing a frame of trust and empathy for most members of the community. While the presence of experts allows for the provision of reliable information, the advice becomes more meaningful and the support seeker feels listened to and appreciated.

In both the communities, we found the four basic forms of social support and an additional one that we called “network support.” Informational support was provided when answering questions with new facts and suggesting recipes for cooking healthy food; emotional support and constructive feedback were demonstrated with messages of encouragement and emoticons showing smiley faces, clapping hands, and thumbs up icons; while tangible assistance was provided by recommending apps, diets, pills, or running shoes, among other products. Finally, the network support is an inherent characteristic of the both communities. When people join the virtual community, they get access to new people facing similar situations or similar goals, who are able to listen with more empathy and to provide specific advice.

We observed a sense of connectedness among the members of the communities, who provide psychological gratification, help individuals to release stress and guilty feelings, and in sum achieve higher levels of wellbeing. In both the cases, the studied communities offer the best of two worlds: the virtual and the face-to-face interactions. Even though we studied the online communities by reading the posts, we learned that both Weight Watchers and Rapport offer their members the opportunity to interact in face-to-face encounters. In fact, Weight Watchers was born in 1963 as a traditional support group for people willing to lose weight, and moved to Facebook just recently to take advantage of the digital technologies and provide different tools for members of the community. While Rapport was created in 2009, people achieved physical and mental goals using neurolinguistic programming and physical activity training. Members of the Rapport community meet weekly for physical training and share questions, photos, and other messages on Facebook.

Members of the studied communities are motivated by common interests and goals. They present certain levels of altruism by offering specific advice and nutritional tips to other members of the community. By choosing when and what to post, members of the virtual communities receive the support when they fail to reach their health-related goals, and the appraisal and recognition for their achievements. At the same time, we identified the presence of social trust. Individuals disclose personal topics, like the low self-esteem derived from being overweight, the struggle to find nice clothes to wear to be physically attractive, and even the criticism they receive from friends and family for not being able to achieve their health-related goals.

5.2. Nudging people toward a better lifestyle with Telegram and Whatsapp

Bariatric surgery has become an option for adults who need to lose weight for medical reasons. Among other benefits, the surgery reduces the incidence of diabetes and hypertension, but in order to be effective, patients need to make important changes in their eating habits and exercise behaviors. In sum, a new lifestyle comes in order and education, advice, and help are needed to be successful and prevent old habits from resurfacing [25].

When dealing with bariatric surgery as a resource to lose weight, previous research has found positive associations between postoperative support and weight loss. It seems that to make significant lifestyle adjustments, education and face-to-face support are needed to cope with stress and prevent relapses [26]. But what happens with those patients that have no time to attend the meetings or are too shy to join a support group? Can digital technology provide a solution for them?

With the advent of instant mobile messaging applications such as Telegram and Whatsapp, people have adopted a new way to communicate with each other and to manage their health. Nowadays, individuals are comfortable addressing a health concern with a doctor or sharing a photo related to a personal health problem using their mobile phones. These facts have been considered as an advantage by physicians, health coaches, and psychologists who use the mobile phones and the apps to deliver specific interventions, advice, and counseling to enhance their patients' health. At the same time, apps such as Whatsapp and Telegram provide patients with free tools to have private conversations to share their most personal concerns and build a community of think-alike supporters.

5.2.1. The method

To shed more light on the use of instant mobile messaging applications in-depth interviews were conducted with five adult women who decided to go into bariatric surgery to lose weight and improve their health. A semistructured questionnaire was used to identify their behaviors and motivations related with health issues and social support. They were also asked about the benefits they receive from using Telegram and/or Whatsapp to be in touch with their doctors and peers. In-depth interviews were recorded, transcribed, and analyzed [27], and the findings are presented in the following section.

5.2.2. The findings

The in-depth interviews allowed us an understanding of the facts that motivate bariatric surgery patients to use instant messaging applications. The five subjects of our study are patients of a bariatric surgeon in the North of Mexico. In fact, it was the doctor who suggested the patients to join a Whatsapp group in order to provide them—along with 340 more patients—consistent and standardized psychological and nutritional advice, designed specifically for bariatric patients.

Our findings suggest that this Whatsapp group offers several advantages, as well as some limitations. The first, and most important, reason to use the group is the presence of three health specialists that conform the bariatric team: the surgeon, a psychologist, and a nutritionist. Having a bariatric team present allows participants to receive supervised support from licensed health providers, who are familiar with each patient case and have the knowledge and experience to provide instrumental and informational support.

Since most persons obtained information for bariatric surgery from friends, there is a need to educate them in several topics, such as grocery shopping, meal preparation, and how to deal with meal times, among other issues. In this group, participants find specific advice on the

process of acquiring—and maintaining—a new lifestyle. The nutritionist shares food recipes and provides tips on how to get all the nutritional requirements with less food and even suggests which restaurants to visit and what meals to order when dining out.

The common person believes that bariatric surgery is a magical solution for obesity. But the surgery is only the first step in achieving a long-term change. A bariatric surgery patient has to deal with several considerations, therefore, the need to have professional support before and after the procedure. Before the surgery, most patients have mixed feelings: they want the surgery to improve their quality of life and look better, but at the same time, they are scared and fear operative and postoperative complications.

Our findings suggest that being a member of the Whatsapp group before the surgery allows patients to reduce preoperative stress and feel confident that the surgery will be a successful event. It seems that being in touch with individuals who already went into the surgery provides new patients with a sense of security and provides enough motivation to continue with the procedure.

After the surgery, other concerns arise. In the first days, some individuals feel ill, have nausea, and are afraid to eat to avoid having an upset stomach. Besides, bariatric surgery patients have to stick to a new diet, which includes limitations on what or how much to eat. In the first weeks, the technical advice and support of the nutritionist is very important. Our sample reported being anxious for not having enough knowledge about food and its nutritional value. While most of them were concerned about food calories before the surgery to avoid gaining weight, now their main concern is if they are having enough nutrients to nourish their bodies and have a healthy lifestyle.

The presence of other patients in the group is valuable in this stage. More experienced patients have already acquired the knowledge and experience to deal with food issues. They have tested several recipes, have a selection of restaurants that serve half portions or small portions, and are willing to share their findings with new patients.

The five interviewed women use the Whatsapp group more than three times a week. They find the support useful and want to be in touch with the bariatric team in a constant way. But they find some limitations: the group is very large (more than 340 patients, plus the health care team); therefore, some conversation threads get lost, there is confusion with some answers, and some members of the group make irrelevant comments or include jokes, photos, or messages that do not support the main goal of the group.

The surgeon also created a Facebook group to provide patients with new forms of support. Videos, food recipes, and photos are published on a daily base, allowing members of the community to easily find specific and useful content for their needs. Additionally in this Facebook group, the surgeon publishes photos of patients who have reached a milestone (i.e., a weight goal). These posts serve as motivators for new patients and provide an environment to receive applause and recognition when a milestone is accomplished. We found that positive comments and words of encouragement are important for bariatric surgery patients, especially for those who suffered from low self-esteem before the surgery or were victims of criticism and isolation for being overweight.

Even though the patients we interviewed affirm that the main reason for going into bariatric surgery was to improve their health, they acknowledge the psychological benefits of losing weight as well. They now feel more confident and attractive; feel free to use more fashionable clothes and lead an active social life.

Given the limitations of the large Whatsapp group, 15 female bariatric surgery patients living in the same city in the North of Mexico created a new and smaller group using Telegram, which allows them to encrypt their comments and have a more personal conversation with women who live in the same area and have access to similar gyms, restaurants, and other service facilities.

The five subjects of our study are active participants in this Telegram group. They join the conversation on a daily base to share advice, exchange recipes, encourage each other, and even setting dates to meet at the gym and exercise together. Participants in the study affirm that Telegram is easy to use, is very appealing because it allows private messages within the group, and is reliable and affordable.

In sum, the five bariatric surgery patients believe Telegram and Whatsapp offer them a window of opportunities to be in touch with a team of experts, that provide constant counseling that includes education, coping strategies, and adjustment advice to achieve and maintain a new lifestyle. In these groups, they feel cared and understood by their virtual friends—who in many cases, become real friends—the comments they receive are always positive and encouraging and allow them to face the anxiety and even the depression of being overweight.

5.3. There is an app for that

The market has a wide offer of technological devices that mounted on the wrist, ankle, or belt of the user track their physical activities, including sleep hours, steps taken, and stairs climbed. Other devices accurately monitor pulse, blood glucose, and stress levels. These wearable devices allow individuals to monitor their health and fitness on a daily basis and have the benefit of creating a dashboard that allows comparison, goal tracking, and even sharing the information with friends and health experts. Some of these devices can be used with specific apps to help users achieve specific health-related goals. There are apps designed for those who want to quit smoking, exercise more, eat healthy or monitor their sleep patterns and stressful moments, and many of them are were built following BE principles, allowing the provision of feedback, triggers, nudges, and rewards [15].

5.3.1. The method

To explore how individuals use wearable devices, smartphones, and apps we conducted five in-depth interviews with graduate students who are interested in doing physical activity and eating a healthy diet to achieve overall physical wellbeing. A semistructured questionnaire was designed to identify their behaviors, and we also asked them to share with us the information provided by the apps' dashboards and explain us the advantages of using those specific apps and wearable devices.

5.3.2. *The findings*

Participants in the study use branded apps (e.g., Nike running) and apps designed by private developers that are offered in the Android and Apple stores. It seems that the subjects of our study prefer apps built with specific scientific knowledge basis like the Transtheoretical Model of Change, which states that behavior change unfold through six different stages: pre-contemplation, contemplation, preparation, action, maintenance, and termination [28]. These types of apps were designed to acknowledge the typical problems an individual faces when trying to quit smoking or engaging into a healthy diet; therefore, as seen by users as a complete set of tools that will help them achieve and maintain the desired behavior.

The most preferred apps offer tools to create social groups, initiate challenges, provide virtual badges when the user reaches a milestone, and offer real-world rewards (such as cash and points to exchange for merchandise at selected stores) to increase engagement and provide external motivation. The apps offer clear dashboards that allow the users to visualize their goals, their achievements, and compare their results with other individuals, creating a friendly competition among users.

Our participants perceive that wearable devices and health-monitoring apps increase their self-efficacy to attain their goals. They appreciate the accurate feedback and the reminders and nudges that help them keep on track. Wearable devices have become an important item of their wardrobe and help them present a distinctive image in their social groups, letting them show their interests and hobbies with specific products such as a watch, a pair of sneakers, or a bracelet.

At the same time, most of the apps can be synchronized with SNS to share the dashboards' data with virtual friends. Sharing exercise information and earned badges affects feelings of connectedness among members of the SNS. This specific feature allows users to receive feedback from their peers, encouragement when they are running a race, and applause when they reach a milestone. For others, the posts serve as a reminder of their own goals and act as a form of pressure to keep going. App users believe the benefit of sharing information on SNS is mutual: they feel not only challenged by peers to achieve their goals but also perceive themselves as influencers setting a good example for their virtual friends to embrace healthier behaviors. We found that the interaction between apps, SNS, and members of a community provides psychological gratification in the form of network support and social incentives.

6. Not everything is sunny and bright: limitations and shortcomings

The content analysis also revealed some limitations and shortcomings of SNS, virtual groups, and health-monitoring apps, which are listed as follows:

- (a) Safety and privacy—Participants in the study show their concern regarding their privacy and safety. Most of them are sharing photos and personal information, which could be misused by hackers or exposes them to threats and cybercrime.

- (b) Unwanted sell calls—Opportunistic people are everywhere, and SNS are not the exception. In the studied communities, we found several posts trying to sell different health-related articles, which were seen as unwanted intrusion by participants.
- (c) Irrelevant comments and posts—Not all participants have the same goal when joining a virtual community and that fact is reflected in their posts (e.g., jokes, nonrelated pictures).
- (d) Reliability and trust—Individuals who chose to join a social support community are seeking for reliable advice. As one participant said during the interviews: “If I see that a virtual friend liked a post in Facebook I take it as a personal recommendation. If he/she likes a product I think that he/she has tried the article and his/her like becomes a reliable source of advice for me.”
- (e) Accuracy of data—Traditional apps require users to self-feed information regarding their habits and behaviors; some individuals might make involuntary mistakes while recording information; therefore, the provided feedback will not be accurate.
- (f) Use it or it won’t work—People have to log in to the SNS to seek and receive the support, individuals have to wear their smart watches or smart bands in order to monitor their behaviors and receive the feedback.

The presence of a community manager can help overcome some of the limitations presented above. Unwanted members of the community can be eliminated and irrelevant posts can be erased. Also, a clear policy on what can be posted will help resolve some of the shortcomings.

Regarding the accuracy of data, it is important to educate users of wearable devices and apps and show them how to register information and how to measure different things (e.g., the amount of food).

Prizes and rewards can be employed to motivate people to use their apps or visit the virtual communities. But finally, we have to acknowledge that the use of SNS, wearable devices, and apps is a personal choice, and people will exert their right to engage with them or not.

7. Conclusion

The high costs of health care, the lack of time to visit the doctor on a regular basis, and the growing interest to prevent illness and diseases are some of the factors that motivate individuals to take health care into their own hands and that can be achieved with the use of technology. The use of apps to monitor exercise and calorie intake seems to be popular among participants in the studied Facebook communities, as well as in the group of runners. Nowadays, apps can be linked to SNS; therefore, individuals receive immediate feedback both from the apps and from their peers in their SNS. Sharing exercise information and badges affects feelings of connectedness among members of the communities, provides a tool that can be used to encourage others to change their current behavior and engage in a healthier one, and motivates individuals to aim higher in terms of exercise goals. By using specific tools like Telegram to create small communities, individuals find a network conformed of peers that have similar

problems and that provide an empathic advice that sometimes is hard to find with relatives and friends. Health apps, therefore, can be used to design specific health marketing interventions. In summary, digital technologies can assist individuals in making good decisions that lead to healthy outcomes.

Appendices and nomenclatures

App	Smartphone application
BE	Behavioral economics
mHealth	Mobile health
SNS	Social network sites

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