



Contents lists available at ScienceDirect

## Technological Forecasting &amp; Social Change



## Seeking and sharing health information on social media: A net valence model and cross-cultural comparison

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### ARTICLE INFO

#### Article history:

Received 30 July 2015

Received in revised form 8 July 2016

Accepted 12 July 2016

Available online xxxx

#### Keywords:

Health information

Social network sites

Social media

Net valence model

### ABSTRACT

In the past few years, social media has changed the way people seek and share health information. However, despite its significant advantages, social media still faces many challenges in user adoption and participation regarding health information. This study focuses on the factors that affect users' intentions to seek and share health information on social media. A net valence model was developed based on social support theory and prior e-service adoption research. Two studies, one in China and the other in Italy, were conducted to test the model. The results show that the proposed net valence model can effectively explain users' intentions to seek and share health information on social media. The results also show important cultural differences. An extensive literature review reveals that this study is among the first to investigate the non-healthcare professionals' intentions to seek and share health information in the context of social media using cross-culture samples.

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### 1. Introduction

In the past few years, social media such as YouTube, Facebook, and Twitter has drastically changed the landscape of the health care industry. It has profoundly changed the ways in which health care providers deliver services. More than 1,500 hospitals in the U.S. now have an online presence on social media (Honigman, 2013). Nearly 5,000 U.S. health organizations (e.g., hospitals, drug companies, and health insurers) have accounts on social media platforms (Allied Health World, 2012). Social media serves as a type of “conciierge” practice that can give quick answers to patients' questions, make appointments, or facilitate follow-up discussions. It greatly saves patients' time and improves the quality of health providers' services. In a prior survey (Allied Health World, 2012), 49% of polled users expected to hear from their doctors within a few hours, and 60% of doctors said social media had improved the quality of care delivered to patients. The Mayo Clinic's podcast audience rose by 76,000 after the Clinic started using social media.

Social media has many advantages in providing health care information. Using social media, health care providers can post health information not only in text but also in more easily accessible forms, such as

images and videos, which can be retrieved at any time of day. Social media empowers health care consumers, providing them with immediate access to an incredible amount of health information and a variety of perspectives on health topics. The information and knowledge that used to be exclusive to health care providers has now become available to all social media users (Ker et al., 2014; Lambert and Loiselle, 2007). In addition, compared to Web 1.0 technologies such as static websites, social media not only facilitates health information-seeking activities but also allows users to share health information. Users can share their health care knowledge, experiences, and symptoms, and they can post reviews about health products, medicines, and doctors. In fact, of those who sought health information on social media, 40% also shared their personal health experiences (Fox and Duggan, 2013). These reciprocal seeking and sharing activities bond patients who have similar health concerns, and they can form online support groups or self-help groups. Prior studies have shown that these health groups can provide patients with informational, emotional, and social support as well as help them cope with their illnesses (Maloney-Krichmar and Preece, 2005).

However, despite its significant advantages in providing health care information, social media still faces many challenges in user adoption and participation regarding health information (Antheunis et al., 2013). In contrast to traditional health care services in which the value is primarily created by health care organizations, the health care services provided on social media rely on collaboration among users (Möller et al., 2008). The success of health care information services on social media requires users to actively participate in not only seeking

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health information but also sharing it. Therefore, what factors affect users' intentions to seek and share health information on social media becomes the focus of this study.

Many prior studies have investigated the antecedents of information-seeking and sharing behaviors in a general business context. However, few studies have examined the antecedents of these two behaviors on social media in the health care context. The context of health care differs significantly from a general business context because health care consumers are more sensitive to potential risks associated with health-related decisions (Bansal et al., 2010). Before seeking or sharing health information on social media, health care consumers have to ensure that the benefits of the behavior outweigh the risks (Bansal et al., 2010). Therefore, the net valence model (NVM) is an appropriate model for this study. The NVM suggests that people will engage in an activity if the associated benefits outweigh the corresponding costs (Fishbein, 1967; Lewin et al., 1944). The NVM has proven to be a powerful model in explaining the adoption of e-services (Featherman and Pavlou, 2003; Featherman and Wells, 2004; Featherman et al., 2006, 2010), but few studies have used it to explain health information-seeking and sharing behaviors on social media. Therefore, our research question: *how does net valence model explain users' intentions to seek and share health information on social media?*

The NVM is also consistent with the cost-benefit view of customer value. According to this view, customers assess the value based on what customers receives (e.g., benefits) and the costs what they have to give up (e.g., sacrifices) (Brodie et al., 2009; Woodruff, 1997). Thus, the NVM can assess how a trade-off is involved when people make their decision to seek and share health information on social media.

To develop the NVM, we conducted an extensive literature review on related research areas. Drawing from social support theory (Cobb, 1976), we identified such benefit factors as emotional support and informational support. From prior e-service adoption research (Featherman and Pavlou, 2003; Hajli et al., 2015), we identified such benefit factors as credibility and perceived usefulness as well as risk factors such as mental intangibility, privacy risk, time risk, social risk, and psychological risk.

Two studies were conducted to test the NVM. One was conducted in China, the other in Italy. According to Hofstede et al. (2010), Italians have a high level of uncertainty avoidance, whereas Chinese culture emphasizes low uncertainty avoidance. We chose these two countries to examine whether this cultural difference impacts users' intentions to seek and share health information on social media.

This study has two significant contributions. First, this study is among the first to apply the NVM to investigate the non-healthcare professionals' intentions to seek and share health information in the context of social media. This study also shows how factors from the social support theory and prior e-service adoption models play a role, through perceived benefits and perceived risks, in influencing users' intentions to seek and share health information on social media. Second, this study is among the first cross-cultural studies to investigate users' intentions to seek and share health information on social media using the theories mentioned above.

The rest of the paper is organized as follows: We first extensively review the literature of health information-seeking and sharing behavior. We then discuss the theoretical foundation on which the hypotheses are based, and present the method of the study. Finally, implications, limitations, and opportunities for future studies, are discussed.

## 2. Literature review

Prior studies have discussed a wide range of social media health care applications (Boulos et al., 2007; Fox and Duggan, 2013; Vance et al.,

2009). Popular social media health care applications include wikis, blogs, podcasting, streaming video services, social bookmarking, collaborative tagging (folksonomies) and tag clouds, and many others (Boulos et al., 2007). These applications have been widely used for sharing and seeking health information by not only patients, health seekers, and lay users but also health care professionals. Based on the user types and their roles, four categories of behaviors are identified as shown in Fig. 1.

Health care professionals include people such as doctors, nurses, social workers, psychologists, counselors, chaplains, volunteers, trainers, and trainees who have gone through health care training and have been socialized into the health care profession (Buckman, 1992). Social media has been widely used by health care professionals for a variety of reasons. Two-thirds of doctors use social media for professional purposes (Honigman, 2013), and 60% of physicians use social media to follow what their colleagues are sharing and discussing (Allied Health World, 2012). Social media is also used for training, exchanging health records, and facilitating speedy communication and collaboration among clinicians (Boulos et al., 2007).

The other type of users, the non-healthcare professionals, includes patients, health seekers, and lay users. Lay users "are those who have not gone through the training or socialization into the particular profession (such as medicine, nursing, chiropractic) which we refer to as the index profession." (Cifer and Dong, 2009, p. 2). Social media provides a wide variety of bidirectional communication tools that connect patients who have similar health concerns. Patients who have chronic diseases, disabilities, or cancers or are recovering from surgeries may find social media particularly useful. Health-related topics that people frequently discuss on social media include specific diseases or medical problems, certain medical treatments or procedures, weight control, health insurance, food safety or recalls, drug safety or recalls, advertised drugs, medical test results, aging, pregnancy, childbirth, and health care costs (Fox and Duggan, 2013).

Through an extensive literature review, we find that the research of health care on social media has not kept up with its applications. Specifically, few studies have examined patients', health seekers', or lay users' (shown in Fig. 1) intentions to seek and share health information on social media. Here health information-seeking is the search for and receipt of messages that help "to reduce uncertainty regarding health status" and "construct a social and personal (cognitive) sense of health." (Tardy and Hale, 1998, p. 338). The primary rationale for searching for health information is to alleviate uncertainty about health decisions (Lambert and Loisel, 2007). Health information-seeking behavior is an important component of coping with illness and health-related uncertainty (Lambert and Loisel, 2007).

We then extend the literature search to related topics in other contexts, and find that health information-seeking behavior has been studied long before the Internet era. Before the Internet, physicians held almost exclusive access to health care information. Apart from health care providers, the public's sources for health information were limited to local experts and the mass media (Kassulke et al., 1993). In the late 1990s, however, the Internet quickly became a major source of health information (Cotten and Gupta, 2004). The Internet enjoys many advantages in providing health information. First, it is an immediate, convenient, and comprehensive source of health information. Second, it is anonymous. It allows health seekers to ask awkward, sensitive, or detailed questions without the risk of facing judgment, scrutiny, or stigma. Third, it decreases the inequalities associated with health care provision and decision making. In the early 2000s, the emergence of social media further changed how the public could seek health information, introducing new possibilities to this research. In addition to all the advantages of the Internet, social media provides a wide variety of bidirectional communication tools that connect health seekers who have similar health concerns.

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