

Investigating the impact of Facebook use on cancer survivors' psychological well-being

Seyedezahra (Shadi) Erfani

Faculty of Business and Economics, Macquarie
University
Shadi.erfani@mq.edu.au

Babak Abedin

Faculty of Business and Economics, Macquarie
University
Babak.Abedin@mq.edu.au

Farhad Daneshgar

Australian School of Business, University of New South Wales
f.daneshgar@unsw.edu.au

ABSTRACT

Rapid growth of Social Network Sites (SNSs) use by cancer survivors makes it important to examine whether there is a relationship between the use of these online communities and cancer survivors' psychological well-being. This article poses the question of how the Facebook use as the most popular SNS, may impact cancer survivors' psychological well-being. To answer this question a comprehensive literature review of studies conducted in information systems and health disciplines has been undertaken and a theoretical model is proposed. This study is expected to contribute to the existing knowledge base through the development of a new theoretical model which introduces and explains the ways that SNS use may impact cancer survivors' psychological well-being. It provides important information on the health-related SNSs use and is envisioned to assist health care organizations and cancer survivors to use SNS as an e-health application.

Keywords

Social network sites; Facebook; quality of life; social capital; social presence; regulation learning; well-being

INTRODUCTION

Internet use has transformed illness management so as cancer survivors are now turning to web, drawing upon their ability to communicate with others in order to obtain health related information, support, product and services (Eysenbach, 2003; Hong, Pena-Purcell, and Ory, 2012) Static health related websites (Web 1.0) offer valuable health related information (Kreps and Neuhauser, 2010) and dynamic websites (web2.0 applications) such as SNSs allow cancer survivors to develop social interaction (Farmer, Holt, Cook and Hearing, 2009).

SNSs are quickly turning into one of the most popular web2.0 applications for social interaction among internet users (Bicen and Cavus, 2011; Burke, Marlow and Lento, 2010). In particular, cancer survivors are now using SNSs to develop peer or mentor relationships for exchanging health related informational and emotional support (Bender, Jimenez-Marroquin, Jadad, 2011). Observations from recent studies show that Facebook, as a popular social network site, has turned into a rich platform for cancer survivors' interaction and some cancer related groups and communities have been emerged on Facebook (Farmer et al., 2009). Cancer survivors, their caregivers, and their family use numerous methods to connect with one another on Facebook (Bender et al., 2011). Facebook offers patients and their family an opportunity to share information and support through sending private messages to other individuals, posting public comments, uploading photographs and video clips (Farmer et al., 2009). In addition cancer survivors who use Facebook are able to develop collaborative dialog, engage in social interactions, share experiences and encourage each other in performing healthy behaviors (McLaughlin, Nam, Gould, Pade, Meeske, Ruccione and Fulk, 2012; Ross, Orr, Sisic, Arseneault and Simmering, 2009). As a result of this Facebook has been increasingly used by cancer survivors (Bender et al., 2011). It is not surprising then that understanding the impact of cancer related SNSs use on cancer survivors who are members of these online communities, is of great interest to both researchers and practitioners. While the effect of other web2.0 applications such as blogs and chat rooms has been examined on cancer survivors' health related topics such as psychological well-being and self-efficacy (Eysenbach, 2003; Fogel, Albert, Schnabel, Ditkoff and Neugut, 2002; Hong et al., 2012; Kreps and Neuhauser, 2010; Rodgers and Chen, 2005), still

little is known about the impact of SNSs use on cancer survivors (Hong et al., 2012). This paper therefore is an initial attempt in addressing this gap by reviewing the information and health literature and proposing a theoretical model which explains the ways that SNS use may impact cancer survivors' psychological well-being.

SIGNIFICANCE OF THIS STUDY

Social network sites and Facebook in particular, have increasingly been used by cancer survivors for various purposes including sharing and achieving informational and emotional support (Bender, 2008, Farmer et al., 2009). Little attention has been paid to evaluating the impact of SNSs use on cancer survivors (Bender et al., 2011). Most prior SNS researches have focused on the antecedents of social network sites and their initial role including informational and emotional support disseminations (Bender et al., 2011). For example, researchers have examined the use of MySpace blogs as a source of information on immunization and concluded web 2.0 applications can facilitate health information distribution (Keelan, Pavri-Garcia, Tomlinson and Wilson, 2007). Another research has concluded Twitter has great potential in sharing information related to side effects of antibiotics (Scanfeld and Larson, 2010). One study has indicated that Facebook can be used as a rich platform for health related interactions and experience sharing (Farmer et al., 2009). And finally, a recent research has shown the role of Facebook for awareness-raising, fundraising, and support-seeking related to breast cancer (Bender et al., 2011).

The current study continues the above efforts in identifying the advantages that SNSs use may have in the context of healthcare. Studies in medical context have shown cancer survivors have gone into the psychological well-being arena but at a later stage (Cella and Tulsky, 1993), therefore introducing approaches that could improve and accelerate cancer survivors' psychological well-being is of major concern. Accordingly, this paper examines the impact of SNSs use on cancer survivors' psychological well-being by explaining the way that Facebook use may impact their psychological well-being (Gustafson, McTavish, Stengle, Ballard, Hawkins, Shaw and Chen, 2005). Three measures of psychological well-being that relate to the social involvement include loneliness, stress, and depression (Drake, Duncan, Sutherland, Abernethy and Henry, 2008) are used in this study. Findings from the current study will inform health organizations about the benefits of SNSs use and how to utilize Facebook more effectively as a new e-health application for improving psychological well-being of cancer survivors.

The study in this paper therefore seeks to answer the following research question:

RQ: In what ways Facebook use may impact cancer survivors' 'psychological well-being'?

RESEARCH BACKGROUND

Social Networks Sites use

The emergence of Web 2.0 applications has reshaped the one way communication between users and the Internet to a two way communication (Burke et al., 2010). Web 2.0 applications such as SNSs connect internet users (Abedin, 2011, Burke et al., 2010) and allow cancer survivors to go online and gather not only the information about their illness, but also discuss their issues and achieve informational and emotional support from supportive professionals and other patients with a similar illness (Ferrell, Smith, Ervin, Itano and Melancon, 2003; Hong et al., 2012). These online communities such as Facebook enable individuals to create their online profiles and express themselves in their profiles, find friends and maintain friendships, and hold visible lists of friends on their profiles (Ellison, Steinfield, and Lampe, 2007; Kim, Chan and Gupta, 2007; Lin and Lu, 2011). One major advantage of the SNSs when compared with other web 2.0 applications such as blogs is that the former display a list of friends, which in turn, will enable users to maintain more intensive interactions with other (Ellison et al., 2010). Such capability is unique to the SNSs (Antheunis, Valkenburg, and Peter, 2010; Boyd and Ellison, 2007). Previous studies conducted around 'Facebook use' have introduced two types of Facebook use namely direct interaction and passive consumption (Burke et al., 2010). The former includes sending private message and posting comments and passive consumption includes broadcasting updates to wide audiences and aggregating information of other ties by observing news feed (Burke et al., 2011).

Psychological well-being

Well-being is defined as a sense of happiness with life (Ventegodt et al., 2003). Psychological well-being refers to individuals' mental well-being (Ventegodt et al., 2003) and deals with emotion and feeling. Previous studies in medical science have shown disruptive events of life such as chronic diseases can have negative effect on the individuals' well-being (Cohen, 2004; Kroenke, Kubzansky, Schernhammer, Holmes and Kawachi, 2006). On the other hand existing evidence shows that the amount of informational and emotional support received by individuals is positively associated with

improvement in individual's well-being (Cohen and Syme, 1985, Gustafson et al., 2005, Hong et al., 2012, Kroenke et al., 2006).

In recent studies psychological well-being has been measured based on self-reported assessment. To this end recent studies have considered different aspect of psychological well-being, including depression, suicidal ideation, self-esteem, and happiness, and mindfulness, and perceived stress (Drake et al., 2008).

RESEARCH HYPOTHESES

This section identifies the elements that may explain the relationship between SNSs use and cancer survivors' psychological well-being. The current study claims that the impact of SNSs use on the psychological well-being may be assessed by elements of *social capital theory*, *social presence theory* and *regulation learning*. As a result the following overarching combined research and theoretical model is proposed for the study (see Figure 1).

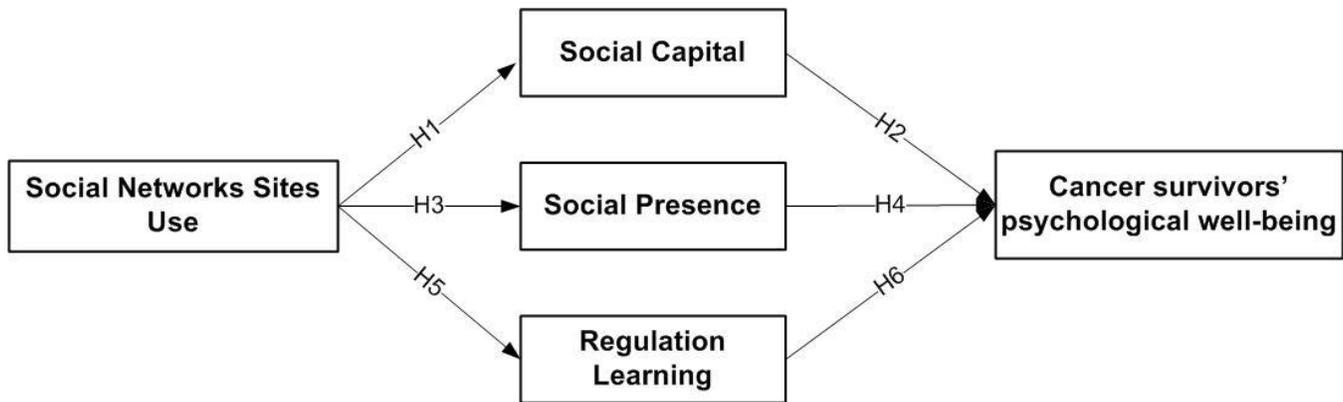


Figure1. The proposed research model of the impact of SNSs use on cancer survivors' psychological well-being

The six hypotheses of the model and associated rationales are explained in the following sections.

Social Networks use, Social Capital, Psychological Well-being

Social capital is one of the first theories in the study that gives some insight into explaining the relation between SNSs use and cancer survivors' psychological well-being. Social capital refers to the actual or virtual resources embedded in social connections with expected outcome (Coleman, 1998) such as health and psychological improvement (Adler and Kwon, 2002; Steinfield, Ellison and Lampe, 2008; Valkenburg, Peter and Schouten, 2006). Social capital is defined as resources which can provide emotional support and bridging social capital and relevant health related information (Putnam, 2000). Internet based technologies have great potential in forming social connections (Finfgeld, 2000) and alternatively social connections play an important role in developing social capital(Wellman, B., Haase, A. Q., Witte, J., Hampton, K. (2001); Resnick,2001). The advances in internet technologies and emergence of social network sites allow internet users to develop extensive social connections (Boyd and Ellison, 2007; Kim et al., 2011) that wouldn't be possible before (Boyd and Ellison, 2007).

On the other hand studies in medical science have shown achieving emotional and informational support is associated with decline in illness related stress, depression and loneliness (Kawachi and Subramanian, 2008) and in turn with improvement in patient's psychological well-being (Lee, Gray, and Lewis, 2010). Findings from other studies have shown that those cancer survivors who receive more emotional support are able to buffer the impact of illness stressors that in turn, is linked to better social and psychological outcome (Gustafson et al., 2005 ; Hong et al., 2012; Im and Chee, 2008).

In the light of the above discussions the current study suggests the following two hypotheses:

H1: SNSs use by cancer survivors may positively impact the latter's perceived social capital.

H2: Perceived social capital may positively impact cancer survivors' psychological well-being.

Social Networks Sites use, Social presence, Psychological well-being

Social presence is an elastic term with a variety of definitions; it has been defined as the sense of understanding communications in community (Heeter, C. 1992), also a "sense of being with others in media" (Biocca, F., Harms, C., and Burgoon, J. K. 2003) through developing personal connections. Other researchers refer to the social presence as a "sense of

individual's abilities to perceive others through their online interactions and the degrees of affective connection" (Shen and Khalifa, 2008) and they have described multidimensional social presence in online communities as following:

1. Awareness: is the feeling of presence of others which can be achieved by the others' responses.
2. Cognitive social presences: is the extent that user understands the meaning of the delivered message within the community.
3. Affective social presence: is the extent that users feel they are interacting in a real world.

The degree of social presence varies in different media depending on the capability of media in providing rapid feedback, conveying non-verbal cues, and reducing communication ambiguity (Kock, 2004). Scholars have concluded that high social presence in a community has been linked with positive outcome such as less loneliness and deprecation (Kock, 2004).

SNSs such as Facebook are rich media that allow members to be aware of other's presence by observing other members' status which can be on or off in a network, by noting other's performance such as posting comments and putting likes, sharing pictures and uploading videos and even poking (Burke et al., 2011). SNSs enable users to develop auditory and visually interaction, upload pictures and videos to convey their message and consequently decrease ambiguity (Antheunis et al., 2010) and make their communication understandable. Accordingly this paper suggests:

H3: SNSs use by cancer survivors may positively impact perceived social presence in the SNS environment.

H4: Cancer survivors' perceived social presence in the SNS environment may positively impact their psychological well-being.

Social Network Sites use, Regulation learning, Psychological well-being

Regulation leaning is a concept that is defined by the sociocultural theory (SCT) (Penuel and Wertsch, 1995) as an element which may be able to explain the relationship between SNSs use and cancer survivors' psychological well-being.

Sociocultural theory (SCT) mainly focuses on learning as a social process (Lantolf, 1994). Objective regulation is one of SCT's concepts and is described as following:

1. Objective regulation occurs when learners learn via observing the social interaction in a social integration (Lantolf, 1994).
2. Other regulation or scaffolding happens when learners learn by achieving assistance from a more competent person such as peer or mentor in social integration (Penuel and Wertsch, 1995). Scaffolding learning or collaboration learning refers to different types of helps including hinting, questioning, encouraging, examining, simplifying in social connections(Lantolf, 1994).

Studies have shown that regulation learning positively impacts individuals' health and psychological well-being (Poellhuber, Chomienne and Karsenti, 2008). Researchers have determined scaffolding learning could lead to achieving health related knowledge and performing healthy behaviors resulted in enhancement of psychological well-being (Watkins, Connell, Fitzgerald, Klem, Hickey, and Ingersoll-Dayton, 2000).

SNSs are social integrations that enable users to accumulate extensive connections, aggregate knowledge of extensive ties and learn new things by observing other's social performance (Burke et al., 2010). In the SNS context, observing members' newsfeed is an example of social performance. In addition, SNSs use enables members to conduct collaborative dialogue in order to be engaged in social interactions and make queries and provide feedback (Bender et al., 2011) and even encourage one another to perform healthy actions (McLaughlin et al., 2012).

As a result of the above findings the current study suggests that:

H5: SNS use by cancer survivors may positively impact their regulation learning.

H6: Cancer survivors' regulation learning may positively impact their psychological well-being

DISCUSSION AND FUTURE RESEARCH

As an initial attempt in theorizing SNS use and its effects on cancer survivors, and by reviewing the current literature, this paper has identified and explained the ways that SNSs use may impact cancer survivors' psychological well-being. The theoretical foundation of the study is the overlapping space of social capital, social presence, and regulation learning theories. All these theories belong to the social philosophical perspective and therefore combining these theories do not create philosophical contradictions nor violates any of the underlying epistemological assumptions. The above theories were used to explain characteristics of the SNS use that when prevailed, will develop positive effect on psychological well-being of cancer survivors.

The results from this study are expected to contribute to the theory and practice as a result of developing a new theoretical model which introduces the ways that SNS use may potentially enhance cancer survivors' psychological well-being. This in turn may ultimately be used to develop specialized SNSs in the form of an e-health application. Such SNS application can then be employed by health organizations to enable cancer survivors to develop extensive mentor and peer relationship and provide informational and emotional support, to understand the obtained information in online environments, and learn new healthy behaviors from others. Consequently, cancer survivors would be able to buffer cancer related stress, depression and loneliness which are associated with better psychological well-being.

The proposed theoretical model is expected to (i) be used for developing further theoretical insights into the matter by extending the proposed model in a variety of directions or in different contexts and perspectives, and (ii) be used by practitioners and application developers for evaluating and analyzing the requirements of various user groups of the proposed system.

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