VIRTUAL COMMUNITIES AS A HEALTH INFORMATION SOURCE:
EXAMINING FACTORS THAT PREDICT INDIVIDUALS’ USE OF SOCIAL MEDIA
FOR HEALTH COMMUNICATION

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VIRTUAL COMMUNITIES AS A HEALTH INFORMATION SOURCE:
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ABSTRACT

The purpose of this study is to examine factors that predict the use of social media for health communication. Specifically, this study used the Theory of Planned Behavior (TPB) as the theoretical framework to examine factors that predict health information-seeking, communicating health-related issues with others, and making health-related decisions via social media.

Findings suggest that, consistent with the theory of planned behavior, attitude was found to be a significant predictor of using social media to seek out health information, participate in health communication, and make health-related decisions. However, subjective norm and perceived behavioral control failed to show as significant predictors of health communication via social media. Implications of these results for health communication via social media and recommendations for future health communication strategies were discussed.
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“Live as if you were to die tomorrow. Learn as if you were to live forever.”

– Mahatma Gandhi

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CHAPTER I
INTRODUCTION

Social media is the future of communication. Exhibiting continued staying power, this virtual medium continues to offer an endless number of ‘niche’ social communities where members can gather together and talk about any type of topic. Enabling interaction and dialogue, social media has undoubtedly changed the way people work, play, think and connect. Giving rise to a new type of conversation, social media focuses on the welfare of the individual and is increasingly seeking out health information (Aase, 2011). Leading popular social media sites, such as Facebook and Twitter, have challenged more traditional patterns of health communication (Chou, Hunt, Beckjord, Moser, & Hesse, 2009) where health information was discussed among a few people and an individual’s healthcare provider. Now, this conversation has moved into a virtual arena where many individuals can partake in a health conversation through direct social media participation, drawing a renewed attention to many health-related issues (Eysenbach, 2008). As a result, everyday avid seekers—including this researcher herself—who have experienced some form of illness are using social media to seek out health information. Additionally, it is this engaged form of virtual communication with others that is ushering in a change in the way people communicate about health concerns (Hughes, 2010). In essence, health communication through social media is empowering individuals through its virtual
influence while enhancing community experience, resulting in a more informed health
decision-maker (US Dept of Health and Human Services, 2010).

Despite the vast possibilities that exist in utilizing social media for seeking health
communication, there are challenges that need to be considered. Of primary interest
would be the nature of social media, itself. Social media is a platform for user-generated
content and, as might be expected from such an open forum, there are no traditional
gatekeepers to monitor the quality of health content presented—drawing attention to the
need for credible, accurate, and private health information. Therefore, it is critical to
understand why and how people seek health communication via social media.

Moreover, when considering the rate in which technology is rapidly advancing
and the numerous multi-media devices produced each year that reflect those
technological changes, it becomes apparent that there is a great deal that is still not fully
understood of health communication within today’s ever-changing convergent
environment (Houston & Cooper, 2002; Aase, 2011). In this study, health communication
refers to seeking health information, communicating with others about health-related
issues, and making health decisions. It is within this setting that social media continues to
maintain its influence as a place for many people to go and hold discussions on numerous
health issues that bring about opportunities to make more informed health decisions, thus
having an influence on health care policy and practice while helping to save lives and
increase quality of life (Kreps, 2008).

While recent literature focuses specifically on online health information-seeking
issues and decision-making, it has not addressed the predictors for social media use as it
pertains to overall health communication, including seeking health information,
communicating health-related issues, and making health decisions (Fox, 2011; Warner & Procaccino, 2007). As a result, the purpose of this study is to examine factors that predict the use of social media for general health communication. Particularly, this study examined factors that predict health information-seeking via social media, communicating health-related issues with others via social media, and making health-related decisions based on health communication through social media.
CHAPTER II
THEORETICAL CONCEPTUALIZATION

For those seeking health information on the Internet and—more specifically through social media—the advent of digital media offers new opportunities for health information-seeking and discussion (Dobransky & Hargittai, 2012). The Internet as a new communicative medium—along with the dawning of subsequent technologies—has changed people’s relationships with regard to information, creating a robust social life more and more focused on health information (Fox, 2011; Stavrositu & Sundar, 2012). Researchers have suggested that the demand for seeking health information is more closely related to the social aspects of doing so, rather than for information-seeking, leading many users to enjoy serious and satisfying contact within virtual communities (Gibbons et al., 2011).

The online conversation about health is being driven forward by two forces: the availability of social tools and motivation, especially among people living with chronic conditions, to connect with each other (Fox, 2011). In a study of using Web 2.0 technologies for health communication, Eysenbach (2008) found that using the Internet for health information facilitates five primary functions, including: social networking, participation, apomediation (i.e., ability to go “directly to the source” for information instead of relying on a gatekeeper such as a doctor or other health professional),
openness, and collaboration, within and between user groups. For users this can fill an “information void” and enhance coping abilities and a person’s self-efficacy, affecting their health-related decisions (Morahan-Martin, 2004).

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) is a theory which looks at how behaviors are changed through influencing intention. TPB suggests that planned behaviors are determined by behavioral intentions which are largely influenced by an individual’s attitude toward a behavior, the subjective norms encasing the execution of the behavior, and the individual’s perception of their control over the behavior (Ajzen, 1988; 1991; 2002; Ajzen & Fishbein, 2005; Ajzen & Manstead, 2007). Ajzen’s (1991) theory includes vitally important constructs for behavior change and is a widely used behavioral prediction theory. TPB demonstrates a social-psychological approach to understanding and predicting the determinants of health behavior (see Figure 1).

![Figure 1. Ajzen’s Theory of Planned Behavior (TPB)](source: Ajzen (1991))
The TPB has helped understand health behaviors ranging from donating blood (Amponsah-Afuwape, Myers, & Newman, 2002) to participation in cancer screenings (DeVellis, Blalock, & Sandler, 1990). Moreover, this theory has been widely applied to various health problems in numerous settings, such as smoking cessation via Internet intervention (Etter, 2005), investigating the motivational capabilities of breast cancer websites (Whitten, Smith, Munday, & LaPlante, 2008), etc.

In England, women’s intentions to receive hormone replacement therapy were examined in a TPB study performed at the Center for Research in Health in Canterbury. Questionnaires were sent to a random sample of women, between the ages of 38 to 58 years old. Findings suggest that the beliefs of their loved ones, perceived behavioral control, and personal beliefs were all predictors of one’s intention to receive hormone replacement therapy (Quine & Rubin, 1997).

Another study conducted by Kovac, Rise and Moan (2009) supported the TPB in guiding the understanding of the intention to quit smoking. Their research found that past experiences with the behavior (quit attempts) had the strongest impact on intentions while subsequently revealing that the predictive utility of the TPB increased with the number of quit attempts.

In terms of social media use, Baker and White (2010) conducted a study using the TPB to predict adolescents’ use of social networking sites, and found support for the TPB in predicting social media use. Results showed that attitude, perceived behavioral control, and group norms significantly predicted intentions of use of social networking sites.

In summary, Ajzen’s (1988) theory of planned behavior (TPB) has been widely used to predict health behaviors and social media use. According to the TPB, a certain set
of motivational factors leads to the intention to act in a certain way (Ajzen, 1991) and, given the right opportunity, people will translate this intention into behavior.

Social Media Use

The term “social media” has rapidly become a term used in both web and cultural vocabularies describing the powerful way in which people are engaging in content on the Internet. At its essence, social media is user-centric; it is—just like its name suggests—media that focuses, applies, and depends on social interaction. While the nature and terminology may vary from site to site, the introduction of social media has introduced a new organizational framework for online communities, and with it, a vibrant new research context. Recent studies have focused on who is using social media, how it is being used, and what the implications are for such use. Peluchette and Karl (2008) found significant gender differences arose when the focus was the type of information posted. Men were more likely to place self-promoting, risqué pictures or comments on their profile. Women, however, were more likely to post romantic or what they deemed to be “cute” pictures and/or information. Hargittai (2008) added other variables such as race, ethnicity, and parental educational background to test differences in social media usage by type of sites (e.g., Facebook, Myspace, Xanga, and Friendster), and indicated that female students were more likely to use Myspace than male students. Hispanic students were significantly less likely to use Facebook but much more likely than others to use Myspace. Students whose parents lack a high school degree were significantly less likely to be on Facebook than those who have higher education (Hargittai, 2008).
In addition, personal traits emerged as a focus of study when investigating social media use. Shim, Lee, and Park (2008) found that “public self-consciousness,” or the overt aspects someone publicly displays, was positively associated with the frequency of posting photos, commenting on those photos, and scrapping photos on their social media. Orr et al. (2009) found that “shyness” was positively correlated with the time spent on Facebook and negatively correlated with the number of Facebook “friends,” suggesting that although shy individuals do not have as many contacts on their Facebook profiles, they still regard this tool as an appealing method of communication and spend more time on social media than do those outgoing individuals. Further, studies such as the one conducted by Wilson, Fornasier, and White (2010) showed that personality traits, such as “openness,” “agreeableness,” and “neuroticism,” significantly predicted both the level of social media use and addictive tendencies. In particular, they suggest that “extroverted” and “unconscientious” individuals show higher levels of both social media use and addictive inclinations.

The use of social media can provide insights into the importance that social media has in the lives of everyday users (Boyd & Ellison, 2007; Greenhow & Robelia, 2009; Valenzuela, Park, & Kee, 2009). First, social media can help with personal identity construction and affect a user’s self-esteem by permitting multiple channels for interpersonal feedback and peer acceptance (Barker 2009; Harter, 1999; Lampe, Ellison, & Steinfield, 2008). For example, Valkenburg, Peter, and Schouten (2006) found that among adolescents, positive feedback on online social media profiles enhanced social self-esteem and well-being whereas negative feedback decreased social self-esteem and well-being. Further, Steinfield, Ellison, and Lampe (2008) suggested that self-esteem can
actually moderate the relationship between Facebook usage intensity and social capital because those with lower self-esteem used Facebook more for the purpose of building human relationships than higher self-esteem participants. As a result, through the use of social media, users can in effect strengthen relational ties, reinforce existing ties among individuals and communities, and promote collective action (Kenski & Stroud, 2006; Shah, Kwak, & Holbert, 2001; Valenzuela, Park, & Kee, 2009).

What drives people to use social media is a question that confronts many scholars who have posited that media use is related to users’ sought gratification, socioeconomic status, and other social factors (Giannakos, Chorianopoulos, Giotopoulos, & Vlamos, 2013; Stefanone & Chang, 2007). Among these factors, numerous studies suggest that people use social media for certain motivations, including socialization, surveillance, pastime, and entertainment (Katz & Blumler, 1974; Palmgreen, Wenner, & Rosengren, 1985). Recent studies show that popular social media sites, such as Facebook, have already become an integral part of daily online operating routines (Giannakos, Chorianopoulos, Giotopoulos, & Vlamos, 2013), illustrating the effect that social and emotional relationships and their intensity can have in supplementing habitual motivation (Papacharissi & Rubin, 2000; Stefanone & Chang, 2007). Moreover, people join social media due to the need for integration and social interaction. For example, Facebook enables its users to present themselves in an online profile and accumulate “friends” who are able to interact with them. Facebook users can also join virtual groups to see what interests they have in common and to learn about each other’s hobbies, political view, and social status.
Shin (2009) classified motivations—with regard to social media—into large subsets: intrinsic motivations, which denote using the systems themselves for seeking out benefits, such as enjoyment and entertainment, and extrinsic motivations, meaning a user’s need to interact with external entities, including that of interacting with other users—giving greater understanding to what users on social media exhibit as they use online media for gratifying their needs and personal motivations. Consequently, social media members use social sites to connect with people from their offline communities as well, such as friends and family, so there usually is an overlap between social media users’ online and offline networks (Boyd & Ellison, 2007).

Further scholarship in this area has also explored whether additional psychological predictors can be identified as motivators for social media use. Young, Dutta, and Dommety (2009) suggested that information from publicly available online social networking profiles can be used to predict people’s motivations for using social media. Individuals displaying a religious affiliation in their profile were more likely to list themselves as single than people who did not provide religious information. Christofides, Muise, and Desmarais (2009) indicated that social media users on Facebook disclosed more information about themselves, such as their birthdays and email addresses, and were more likely to post pictures with themselves and friends at parties drinking and socializing. Similarly, social media facilitates knowledge sharing by reducing the cost of finding information and connecting people who have related interests (Yang & Chen, 2008).

In terms of health communication, studies show how social media is being used as an online tool that allows for collaboration and community building through health
information-seeking (e.g., Chou, et al., 2009; Koch-Weser, Bradshaw, Gaultieri, & Gallagher, 2010). Chou and colleagues (2009) showed that among participants engaged in social media, those reporting themselves as less healthy were more likely to use online support groups—confirming that participation in such groups is driven by health status. These findings along with others, such as the 2005 Health Information National Trends Survey, highlight the importance of health exposure, trust, and social networks as factors that influence the use of the Internet as a health information resource (Cantar, Covell, Davis, Park, & Rizzo, 2005; Koch-Weser, et al., 2010).

Researchers found that Internet-based support groups—including newsgroups, message boards, and listservs for specific medical conditions—have been successful in improving some intermediate patient outcomes in clinical trials involving Alzheimer’s caregivers and for patients with AIDS (Brennan, Moore, & Smyth, 1995; Brennan, Ripich, & Moore, 1991; Gallienne, Moore, & Brennan, 1993). Findings have demonstrated that the use of social media reduced self-reported isolation in an AIDS trial and led to greater perceived confidence in the ability to care for family members with Alzheimer’s. In addition, heavy users of Internet-based peer support groups for people suffering from depression, when offered information and support, were more likely to have a resolution to their depression during follow-ups than less frequent users (Houston & Cooper, 2002). Similarly, researchers also investigated online social media support for able-bodied people and found that older adult Internet users reported higher satisfaction with their Internet providers when it came to social support received—leading to greater involvement within the online community. As a result, users experienced lower perceived life stress, concluding that social relationships and social support are potent variables that
can reduce exposure to stress, promote health, and buffer the impact of stress on health, thus contributing to increases in both the quality and longevity of life (Wright, 2000).

Today, it is apparent that more and more people are using social media to seek out health information and connect with others having similar concerns (Phillips, 2011). The nature of social media and how their content is delivered is impacting users’ choices by generating new accessibility and methods of conversation (Robledo, 2012). As such, social media can be seen as a channel that helps raise awareness of health-related issues and facilitates behavior change (Hughes, 2010). Research in health behavior indicates that those who seek out intrapersonal communication tools (e.g., social media applications) for specific health queries are empowered end-users, seeking out content that is credible and effective (Eysenbach, 2008). Health seekers are going online, using social media tools, looking for recommendations and information needed to make medical decisions (Fox & Rainie, 2002).

Online Health Communication

The unprecedented dissemination of the Internet has provided many adults with access to vast amounts of health information. More than 80% of American adults use the Internet and among those, 72% have actively sought health information online in the past year (Fox, 2013). This includes searches related to serious conditions, general information searches, and searches for minor health problems. Pew Internet & American Life Project (2013) found that 35% of U.S. adults report that at one time or another they have gone online specifically to try to figure out what medical condition they have or
someone else might have—resulting in one in three American adults using the Internet as a diagnostic tool.

Further, reports indicate that eight out of ten online health queries start at search engines such as Google, Bing, or Yahoo! (Fox, 2013). Moreover, 62% of adult Internet users, or 46% of all adults, use social media. Of those social media users, 23% of users or 11% of adults, have followed their friends’ personal health experiences or updates on the site, while 17% of such users, or 8% of adults, have used social media to remember or memorialize other people who suffered from a certain health condition. About 15% of the same users or 7% of adults retrieved some form of health information on the sites (Fox, 2011).

While the online conversation appears to be taking shape, an increasing number of people are using the Internet not only to seek out health information, but to seek out actual health advice (Donald, Lindenberg, & Humphreys, 1998; Han, Hou, Kim, & Gustafson, 2014), taking advantage of the large quantities of information online as well as the convenience of access to and retention of information (Kreps, 2012; Murray, et al., 2003). Subsequently, additional studies have examined the impact of online health information behavior from various perspectives. In developing countries like Iran, a study was conducted to discover the ways in which people find health information and evaluate the role that public libraries take in providing users with health information (Gavgani, Qeisari, & Asghari Jafarabadi, 2013). Findings suggest that half of those surveyed used online health resources at public libraries as it was seen as a low-cost, health information alternative. Health information-seekers were seen as passive rather than active, suggesting a role that public libraries can take to educate citizens in Iran on how to search
for authentic healthcare sites online and increase awareness of available online health resources offered through the library system (Gavgani, Qeisari, & Asghari Jafarabadi, 2013).

Basu and Dutta (2008) examined the link between community participation and health information-seeking behavior as it pertains to health information orientation and health information efficacy. Results showed how participation in local communities is positively related with both motivations to seek out health information and the perceived ability to seek out health information. A lack of access to online health information and resources was also found as the primary reason for differentiating levels of health and well-being among different communities surveyed.

In addition, Eastin (2001) suggested that users’ knowledge of content and judgment of source expertise affect their perceived credibility of online health information. Similarly, Sillence, Briggs, Harris, and Fishwick (2007) found that health information seekers go through various stages of information processing in which they evaluate the design, content, and trustworthiness of websites in order to assess credibility of an online health source. More recently, Britt, et al. (2013) developed a valid and reliable measure of eHealth communication competency to help a wider range of audiences understand, at an individual level, the role the user has in using Internet media for health purposes. Research such as this is essential in order to better understand health communication in today’s contextually rich social media environment.

While recent literature addresses online health information-seeking issues and decision-making, respectively—it has not addressed the predictors for social media use as it pertains to overall health communication, including seeking health information,
communicating health-related issues, and making health decisions (Fox, 2011; Warner & Procaccino, 2007). Thus, this study aims to examine factors that predict the use of social media for general health communication. Specifically, this study examined factors that predict health information-seeking via social media, communicating health-related issues with others via social media, and making health-related decisions based on health communication through social media. The following research questions are proposed:

RQ1: What factors predict using social media to seek health information?

RQ2: What factors predict using social media to communicate with others about health-related issues?

RQ3: What factors predict making health-related decisions based on health communication through social media?
CHAPTER III
METHODOLOGY

This study examined the predictors of using social media to seek health information, to communicate with others about health-related issues, and to make health decisions by conducting a survey. Surveys have been widely used to examine factors that predict behaviour. This study’s survey questionnaire was distributed through social media and via communication courses at a large Midwestern university. The participants were invited to take part in a study of health communication. In all, 228 respondents completed the survey. Among the respondents, 45.6% (104) were female, and 54.4% (124) were male. Respondent ages ranged from 18 to 71 with a mean of 28. The median age of participants was 30. Overall, 85.5% were students and 14.5% were non-student adults. In terms of ethnicity, 80.3% were Caucasian, 11.0% were African or African American, 2.2% were Asian or Pacific Islander, 1.8% were Hispanic, and 0.9% were American Indian or Alaska Native. About 49.6% of the sample had average household incomes under $50,000, while the remaining 50.4% had incomes greater than $50,000. In addition, 95.2% of the respondents self-reported having access to the Internet at their current residence.
Measures

Measures in this study were clustered into three main categories: variables related to the Theory of Planned Behavior (TPB), general Internet use/social media use, and online health communication. These measures are detailed below.

Variables Related to TPB. To measure attitude, a 7-point semantic differential scale was employed. Respondents were required to circle one number for each pair of adjectives that best reflects their attitude toward using social media for health communication. The pairs included: useless/useful, foolish/wise, unproductive/productive, unhelpful/helpful, harmful/beneficial, bad/good, worthless/valuable. The Cronbach’s alpha coefficient for attitude was .957 (M = 3.638; SD = 1.486).

Subjective norms were measured by using a 7-point Likert scale (i.e., 1 = strongly disagree; 7 = strongly agree). Respondents were asked to rate each of the six statements according to their level of agreement. All the statements were drawn from previous TPB studies (Baker & White, 2010; Pelling & White, 2009; Ajzen, 1991). The statements include: “Most people who are important to me would want me to socialize online (e.g., using Facebook, Twitter, etc.); People that are important to me recommend that I use social networking sites; If I use a social networking site people that are important to me would approve; Others feel that I am more accessible because I use a social networking site; I think most of my acquaintances use social networking; and I think my use of social networking is typical for my age group.” The Cronbach’s alpha coefficient for subjective norms was .867 (M = 4.849; SD = 1.268).
Perceived behavior control was measured by using a 7-point Likert scale. Respondents were asked to rate each of the six statements according to their level of agreement. All the statements were drawn from previous research (Ellison, Steinfield, & Lampe, 2007; Ajzen, 1991), including: “I have complete control over whether I socialize online (e.g., using Facebook, Twitter, etc.); For me, participating in social networking is easy; I feel capable enough to use all the functions of social networking sites; I feel competent enough to use the site to do what I want to do; I rarely encounter problems that I cannot overcome when using a social networking site; and I know how to use social networking sites.” The Cronbach’s alpha coefficient for perceived behavior control was .907 ($M = 5.736; SD = 1.156$).

**General Internet Use and Social Media Use.** A 7-point Likert scale was employed to measure technology skills. Respondents were asked to rate their overall technology skill (e.g., 1 indicating *not technically progressive at all, or low tech*; 7 indicating *very technically progressive, or high tech*).

A 7-point Likert scale (ranging from *never to almost always*) was employed to measure social media use. Respondents indicated how often they engaged in each of the following social media activities, including: following Facebook, posting /commenting on Facebook, following Twitter, posting/commenting on Twitter, following other social media, and posting/commenting on other social media sites. Respondents were also asked to report the estimated time they spent using social media during the previous 24 hours.
Online Health Communication. On a 7-point Likert scale (ranging from never to almost always), respondents indicated how often they engage in each of the following three activities: using social media platforms for health communication over the last 12 months, using social media, and seeking health information through social media, communicating health-related issues with others via social media, and making health-related decisions based on health communication through social media.

Moreover, on a 7-point scale (e.g., 1 indicating not at all; 7 indicating a lot), respondents indicated how much they trusted information about health or medical topics on social media. In a 7-point scale (e.g., 1 indicating not at all; 7 indicating very interested), respondents indicated how interested they are in health/fitness. In a 7-point scale (e.g., 1 indicating poor; 7 indicating excellent), respondents also rated their overall health.

Furthermore, a 7-point Likert scale was employed to measure e-health communication competency (i.e., 1 = strongly disagree to 7 = strongly agree). Respondents were asked to rate each of the 20 statements according to their level of agreement. All the statements were drawn from previous online health communication studies (e.g., Britt, et al., 2013; see the Appendix). A principal component factor analysis of these items with varimax rotation was conducted. The analysis generated four principal factors: efficacy (α = .930; M = 3.987; SD = 1.285); knowledge (α = .895; M = 4.200; SD = 1.550); usage (α = .899; M = 3.069; SD = 1.388); and motivation (α = .867; M = 3.589; SD = 1.597).

Finally, respondents also provided demographic variables, including age, gender, ethnicity, and household income.
Data Screening and Analysis

Researcher used Frequency, Explore, and Q-Q graphic in SPSS for initial data screening. In addition, VIF statistics were examined and no evidence of multicollinearity was found between the variables studied in this research. In terms of data analysis, Pearson Correlation tests were used to examine the correlations between independent variables and each of the dependent variables. Multiple regression analyses using forward model were conducted to analyze the predictors of using social media to seek health communication, to communicate with others about health-related issues, and to make health decisions, respectively.
The 228 respondents reported spending an average of three hours a day using social media. However, they self-reported that they rarely used social media platforms for health communication during the past 12 months (i.e., Facebook, 3.37/7; Twitter, 2.57/7; medical blogs, 2.31/7; and online support groups, 1.81/7). In addition, respondents self-reported they sometimes followed, and post/commented on Facebook, Twitter, and other social media for health-related issues (i.e., follow Facebook, 3.98; post/comment on Facebook, 3.56; follow Twitter, 3.18; post/comment on Twitter, 2.94; follow other social media, 3.69; post/comment on other social media, 3.44). Moreover, respondents were generally neutral—neither trusting nor distrusting information—about health or medical topics on social media (4.23/7). They also rated their overall health as above average (5.69/7).

To answer RQ1, this study found there were significant correlations between using social media to seek health information and the following independent variables, including: attitude towards using social media for health communication ($r = .620; p < .0001$; see Table 1); e-health communication competency—usage ($r = .483; p < .0001$); e-health communication competency—efficacy ($r = .440; p < .0001$); e-health communication competency—knowledge ($r = .402; p < .0001$), follow other social media
post on other social media ($r = .345; p < .0001$); follow Facebook ($r = .283; p < .0001$); trust in using social media for health communication ($r = .273; p < .0001$); interest in health-related issues ($r = .260; p < .0001$); social norms ($r = .222; p < .0001$); follow Twitter ($r = .219; p < .0001$); post on Facebook ($r = .218; p < .0001$); time spent using social media ($r = .185; p = .005$); and post on Twitter ($r = .157; p = .018$).

There were no significant correlations between using social media to seek health information and perceived behavior control ($r = .126; p = .058$); age ($r = -.113; p = .088$); income ($r = -.081; p = .222$); gender ($r = -.051; p = .442$); their own health ($r = .048, p = .467$); e-health communication competency—motive ($r = -.042; p = .531$), technology skills ($r = -.009; p = .892$); and education ($r = .005; p = .944$).

In addition, this study found there were significant correlations between communicating with others about health-related information via social media and the following independent variables measured in this study, including: e-health communication competency—efficacy ($r = .472; p < .0001$, see Table 2); attitude towards using social media for health communication ($r = .440; p < .0001$); e-health communication competency—usage ($r = .320; p < .0001$); e-health communication competency—knowledge ($r = .311; p < .0001$); post on other social media ($r = .291; p < .0001$); follow other social media ($r = .284; p < .0001$); post on Facebook ($r = .270; p < .0001$); follow Facebook ($r = .259; p < .0001$); follow Twitter ($r = .245; p < .0001$); trust in using social media for health communication ($r = .244; p < .0001$); social norms ($r = .241; p < .0001$), time spent using social media ($r = .226; p = .001$); post on Twitter ($r = .202; p = .002$); and interest in health-related issues ($r = .190; p = .004$).
Table 1

Significant Correlations between Independent Variables and Seeking Health Information via Social Media

<table>
<thead>
<tr>
<th>Variables</th>
<th>$r$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward using social media for health communication</td>
<td>.620</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--usage</td>
<td>.483</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--efficacy</td>
<td>.440</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--knowledge</td>
<td>.402</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow other social media</td>
<td>.345</td>
<td>.000***</td>
</tr>
<tr>
<td>Post on other social media</td>
<td>.291</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow Facebook</td>
<td>.283</td>
<td>.000***</td>
</tr>
<tr>
<td>Trust in using social media for health communication</td>
<td>.273</td>
<td>.000***</td>
</tr>
<tr>
<td>Interest in health-related issues</td>
<td>.260</td>
<td>.000***</td>
</tr>
<tr>
<td>Social norms</td>
<td>.222</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow Twitter</td>
<td>.219</td>
<td>.000***</td>
</tr>
<tr>
<td>Post on Facebook</td>
<td>.218</td>
<td>.000***</td>
</tr>
<tr>
<td>Time spent using social media</td>
<td>.185</td>
<td>.005**</td>
</tr>
<tr>
<td>Post on Twitter</td>
<td>.157</td>
<td>.018*</td>
</tr>
</tbody>
</table>

*Note: ***$p \leq .001$; **$p \leq .01$; *$p \leq .05$*
Table 2

Significant Correlations between Independent Variables and Communicating with Others about Health-Related Information via Social Media

<table>
<thead>
<tr>
<th>Variables</th>
<th>$r$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-health communication competency--efficacy</td>
<td>.472</td>
<td>.000***</td>
</tr>
<tr>
<td>Attitude toward using social media for health communication</td>
<td>.440</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--usage</td>
<td>.320</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--knowledge</td>
<td>.311</td>
<td>.000***</td>
</tr>
<tr>
<td>Post on other social media</td>
<td>.291</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow other social media</td>
<td>.284</td>
<td>.000***</td>
</tr>
<tr>
<td>Post on Facebook</td>
<td>.270</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow Facebook</td>
<td>.259</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow Twitter</td>
<td>.245</td>
<td>.000***</td>
</tr>
<tr>
<td>Trust in using social media for health communication</td>
<td>.244</td>
<td>.000***</td>
</tr>
<tr>
<td>Social norms</td>
<td>.241</td>
<td>.000***</td>
</tr>
<tr>
<td>Time spent using social media</td>
<td>.226</td>
<td>.001***</td>
</tr>
<tr>
<td>Post on Twitter</td>
<td>.202</td>
<td>.002**</td>
</tr>
<tr>
<td>Interest in health-related issues</td>
<td>.190</td>
<td>.004**</td>
</tr>
</tbody>
</table>

Note: ***$p < .001$; **$p < .01$
No significant correlations were found between communicating with others about health-related information via social media and perceived behavior control ($r = .130; p = .051$), age ($r = -.086; p = .197$); their own health ($r = .067; p = .315$); gender ($r = -.039; p = .585$); income ($r = .016; p = .809$); technology skills ($r = .011; p = .872$), e-health communication competency—motive ($r = -.007; p = .921$), and education ($r = .005; p = .944$).

This study also found there were significant correlations between using social media to make health decisions and independent variables, such as: attitude towards using social media for health communication ($r = .575; p < .0001$; see Table 3); e-health communication competency—usage ($r = .507; p < .0001$); e-health communication competency—efficacy ($r = .409; p < .0001$), e-health communication competency—knowledge ($r = .360; p < .0001$), follow Facebook ($r = .287; p < .0001$); follow other social media ($r = .271; p < .0001$); trust in using social media for health communication ($r = .267; p < .0001$), social norms ($r = .246; p < .0001$); post on other social media ($r = .243; p < .0001$); post on Facebook ($r = .235; p < .0001$); follow Twitter ($r = .224; p < .0001$); interest in health-related issues ($r = .221; p = .001$); time spent using social media ($r = .173; p = .009$); and post on Twitter ($r = .167; p = .011$).

However, this study found no significant correlations between using social media to make health decisions and age ($r = -.121; p = .069$); perceived behavior control ($r = .106; p = .111$); their own health ($r = .081; p = .226$); gender ($r = -.079; p = .232$); income ($r = -.014; p = .337$); education ($r = -.032; p = .632$); technology skills ($r = -.018; p = .784$); and e-health communication competency—motive ($r = -.006; p = .931$).
Table 3

Significant Correlations between Independent Variables and Using Social Media to Make Health Decisions

<table>
<thead>
<tr>
<th>Variables</th>
<th>$r$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward using social media for health communication</td>
<td>.575</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--usage</td>
<td>.507</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--efficacy</td>
<td>.409</td>
<td>.000***</td>
</tr>
<tr>
<td>E-health communication competency--knowledge</td>
<td>.360</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow Facebook</td>
<td>.287</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow other social media</td>
<td>.271</td>
<td>.000***</td>
</tr>
<tr>
<td>Trust in using social media for health communication</td>
<td>.267</td>
<td>.000***</td>
</tr>
<tr>
<td>Social norms</td>
<td>.246</td>
<td>.000***</td>
</tr>
<tr>
<td>Post on other social media</td>
<td>.243</td>
<td>.000***</td>
</tr>
<tr>
<td>Post on Facebook</td>
<td>.235</td>
<td>.000***</td>
</tr>
<tr>
<td>Follow Twitter</td>
<td>.224</td>
<td>.000***</td>
</tr>
<tr>
<td>Interest in health-related issues</td>
<td>.221</td>
<td>.001***</td>
</tr>
<tr>
<td>Time spent using social media</td>
<td>.173</td>
<td>.009**</td>
</tr>
<tr>
<td>Post on Twitter</td>
<td>.167</td>
<td>.011*</td>
</tr>
</tbody>
</table>

*Note:* ***$p \leq .001$; **$p \leq .01$; *$p \leq .05$
To answer RQ2, multiple regression analyses using forward model were conducted to examine the predictors of using social media to seek health information, to communicate with others about health-related issues on social media, and to make health decisions, respectively. Overall, six factors—attitude towards health communication via social media, e-health communication competency—usage, frequency of following other social media, e-health communication competency—efficacy, interest in health-related issues, and time spent using social media—significantly predicted using social media to seek health information (see Table 4). Together, these six variables explained 53.3% of the variance in seeking health information via social media. Table 4 indicates the partial correlations for each variable, plus the explanatory value for a variable when all other variables were controlled. Attitude towards using social media for health communication was the strongest predictor, which provided a unique explanation of 11.4% when all other variables were controlled. E-health communication competency—usage added a unique explanation of 3.5%, following other social media provided 3.9%, e-health communication competency—efficacy added 1.5%, the respondents’ general interest in health-related issues added another 1.1%, and their overall social media exposure provided 0.8% unique explanation when all other variables were controlled.

In addition, four factors—e-health communication competency—efficacy, attitude towards using social media for health communication, post on other social media, and time spent using social media—significantly predicted using social media to communicate with others about health-related issues (see Table 5). As the model indicates, e-health competency—efficacy provided a unique explanation of 10.4% when all other variables were controlled. Attitude added 6.0%; post on other social media
3.1%; and overall social media exposure provided additional 2.6% of unique explanation when all variables were controlled. Together, these four explained 37.1% variance in using social media to communicate with others about health-related issues.

Table 4

Significant Predictors of Using Social Media to Seek Health Information

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Partial Correlation</th>
<th>Beta</th>
<th>All Variables Controlled R²</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward using social media for health communication</td>
<td>.443***</td>
<td>.398***</td>
<td>.114***</td>
<td>.000</td>
</tr>
<tr>
<td>E-health communication competency—usage</td>
<td>.263***</td>
<td>.220***</td>
<td>.035***</td>
<td>.000</td>
</tr>
<tr>
<td>Follow other social media</td>
<td>.279***</td>
<td>.207***</td>
<td>.039***</td>
<td>.000</td>
</tr>
<tr>
<td>E-health communication competency—efficacy</td>
<td>.178**</td>
<td>.143**</td>
<td>.015**</td>
<td>.008</td>
</tr>
<tr>
<td>Interest in health-related issues</td>
<td>.153*</td>
<td>.110*</td>
<td>.011*</td>
<td>.022</td>
</tr>
<tr>
<td>Time spent using social media</td>
<td>.133*</td>
<td>.094*</td>
<td>.008*</td>
<td>.047</td>
</tr>
</tbody>
</table>

Note: R² = .533; Adjusted R² = .520, p < .001; ***p ≤ .001; **p ≤ .01; *p ≤ .05.

Finally, four factors significantly predicted using social media to make health decisions, including: attitude toward using social media for health communication, e-health communication competency—usage, post on other social media, and e-health communication competency—efficacy (see Table 6). As the model indicates attitude
provided a unique explanation of 10.6% when all other variables were controlled. E-health competency—usage added 5.6%; post on other social media 2.7%; and e-health competency—efficacy provided 1.2% of unique explanation when all variables were controlled. Together, these four explained 45.4% variance in using social media to make health decisions.

Table 5
Significant Predictors of Using Social Media to Communicate with Others about Health-Related Issues

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Partial Correlation</th>
<th>Beta</th>
<th>All Variables Controlled (R^2)</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-health communication competency--efficacy</td>
<td>.376***</td>
<td>.349***</td>
<td>.104***</td>
<td>.000</td>
</tr>
<tr>
<td>Attitude toward using social media for health communication</td>
<td>.295***</td>
<td>.267***</td>
<td>.060***</td>
<td>.000</td>
</tr>
<tr>
<td>Post on other social media</td>
<td>.215**</td>
<td>.180**</td>
<td>.031**</td>
<td>.001</td>
</tr>
<tr>
<td>Time spent using social media</td>
<td>.198**</td>
<td>.164**</td>
<td>.026**</td>
<td>.003</td>
</tr>
</tbody>
</table>

Note: \(R^2 = .371; \) Adjusted \(R^2 = .360, p < .001; \)
***\(p \le .001; \)**\(p \le .01. \)
### Table 6

**Significant Predictors of Using Social Media to Make Health Decisions**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Partial Correlation</th>
<th>Beta</th>
<th>All Variables Controlled R²</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward using social media for health communication</td>
<td>.403</td>
<td>.376</td>
<td>.106</td>
<td>.000</td>
</tr>
<tr>
<td>E-health communication competency--usage</td>
<td>.313</td>
<td>.285</td>
<td>.059</td>
<td>.000</td>
</tr>
<tr>
<td>Post on other social media</td>
<td>.217</td>
<td>.167</td>
<td>.027</td>
<td>.001</td>
</tr>
<tr>
<td>E-health communication competency--efficacy</td>
<td>.149</td>
<td>.127</td>
<td>.012</td>
<td>.026</td>
</tr>
</tbody>
</table>

*Note: R² = .454; Adjusted R² = .444, p < .001; ***p < .001; **p < .01.*
Given rapid changes in the communication landscape brought by social media, it is important to develop a better understanding of how this medium impacts health communication. This study represents one of the first attempts to examine and compare factors that predict using social media to seek health information, communicate with others about health-related issues and make health-related decisions, and achieve a comprehensive understanding of how and why people use social media for health communication. This study also helps to predict what the amateur health seeker, like the researcher, herself; would do over social media when searching for routine help in order to make informed health decisions.

The current study tested the validity of the TPB model and used it as a guide to explain social media use for health communication. Overall, the results provide support for the standard TPB model in that a person’s positive attitude about seeking health communication via social media was consistently the strongest and most significant factor of utilizing social media for health information-seeking, and in using social media to make health decisions (in addition to ranking as the second most significant predictor for communicating with others about health-related issues). Results suggest that, even in the social media environment, a person’s attitude towards engaging in health
communication is the single most important and significant predictor of their health communication behavior, which agrees with previous TPB studies (Ajzen & Fishbein, 2005; Finlay, Trafimow, & Moroi, 1999). Thus, health communication specialists should focus efforts on promoting the benefits that a positive attitude can have when using social media for health communication in order to land successful social media campaigns. If people perceive social media as an incredible or inaccurate source for health communication, they will not choose this platform for their communication needs.

However, subjective norm did not emerge as a significant predictor in using social media for health information-seeking, communicating with others about health-related issues, and in using social media to make health decisions. This research suggests that a person’s perceptions of outside social pressure in sharing health information publicly do not influence the decision of using social media for health communication. Future studies may want to explore the relationships between normative pressures and health behavior when using social media.

Similarly, perceived behavior control (PBC) did not emerge as a significant factor that predicts using social media to seek health information, communicating with others about health-related information via social media, or in using social media to make health-related decisions. According to Ajzen (2002), this may be explained as PBC is used to deal with situations where people do not have complete volitional control (i.e., behavior with outside influences) over the particular behavior being examined. An explanation could lie in the utilitarian nature of the online health communication seeker where demand is for more control, less effort, and higher efficiency (Koufaris & Hampton-Sosa, 2002). Social media provides users with an empowerment they have
never experienced before, thus perceived behavior control did not act as a key factor that predicts the adoption behavior.

An additional finding of this study revealed that e-health knowledge, which is the degree to which individuals have the ability to obtain, process, understand, and communicate health information through electronic resources, emerged as a strong predictor of health communication via social media. These findings suggest that behavioral intentions to engage in social media for health communication were stronger for those with the availability and technical ability to utilize this social medium. This implies that social media can generate and provide the means for health information. Nonetheless, providing access and training to use these tools are crucial (Anand, Gupta, & Swatikwatra, 2013). Such results continue to underscore the fact that individuals must be able to read, write, and have a rudimentary knowledge of how to use multi-media platform devices in order to truly take advantage of the health information and support available on social media.

This brings attention to the subject of e-health literacy and the importance of having the basic ability and access to obtain, understand, evaluate, and communicate health information in order to make informed health decisions (Galinsky, Schopler, & Abell, 1997; Mackert, Champlin, Holton, Muñoz, & Damásio, 2014). Referred to as the ‘digital divide,’ this divide or disparity brings attention to the gap present between people who have opportunities and skills enabling to benefit from digital resources and those who do not have the opportunities and skills. Encouragement to continue online training and open access to those who might not otherwise have the ability to pay for such services can bridge this gap and help more individuals benefit from the accessibility
provided through online health resources and social forums (Madara, 1997). Future studies should examine how digital divide impacts health communication on social media.

The results of this study demonstrate the value of using the TPB model to explain social media health communication behavior. Attitude was found to be the strongest predictor of behavior and coincides with other TPB studies (Ajzen & Fishbein, 2005). Consequently, research shows that a lack of PBC can also help explain why an individual fails to perform a behavior even when a predictor such as attitude emerges as a strong influence.

Furthermore, this study did find differences in factors that predict seeking health information, communicating health-related issues, and making health decisions via social media. Results showed that there were weaker relationships between self-efficacy and using social media to seek health information and using social media to make health decisions, compared to the relationship between self-efficacy and using social media to communicate with others about health-related issues. This suggests that using social media to seek health information and make health decisions is associated with anxiety and coincides with TPB model results suggesting that a person’s perceptions of outside social pressure in seeking health information and in making health decisions publicly results in a hesitation to use social media for health communication.

Subsequently, this study found that while the interest and ability to seek out health information online was strong, social media sites—such as Facebook and Twitter—were not frequently used as a means for health communication use. While lack of trust in communicating health information over social media was indicated in the study, users
may not be aware of the benefits of using social media or not comfortable in using this medium. Thus, it is important for social media health communication professionals to provide more mentoring efforts, e-learning modules, and the development of training programs that aid users in becoming more comfortable about using social media for health communication. Other suggestions include the continuation of academic research focused on the use of multi-media platforms for health communication to assist in understanding how evolving technologies are changing the way health communication is perceived and communicated. For health marketing professionals, launching multi-media ad campaigns focused on engaging users on how health communication is used through social media can be a more mainstream way of communicating everyday health information.

While this study provides important insights into using social media platforms for health communication, these initial results should be viewed in context. This study was based in large part on a university sample, and respondents may have been predisposed to partake in a study about health communication via social media which may not reflect the “typical” health communication-seeker. Further, this study was comprised of a younger group that did not have chronic health issues. Future studies should look into different demographics of people who experience chronic illness and utilize social media. In addition, this study was based on respondents’ self-reports using a survey. Future research should consider using a variety of different methods such as including observations along with surveys for a mixed method approach that will help provide a more in-depth analysis and explanation. Moreover, social media platforms are continuously growing as many mobile devices are used for communication. Future
research is encouraged to replicate this study and expand upon it to examine people’s multiplatform experience using mobile devices for health communication. Additional recommendations would include determining the impact of social media for health communication in specific population groups as well as determining the overall effectiveness of using various social media applications for health information-seeking and communicating. Despite these limitations, this study contributes to the knowledge base of how new technologies influence health communication behavior and informs future programs aiming to utilize social media for health communication.
REFERENCES


APPENDIX

The EHC Scale

Dimension 1: Efficacy

My health communication with others via social media is consistently clear.

I make sure my objectives are emphasized when I communicate about health-related issues with others via social media.

I get my ideas across clearly in communicating with others for health purposes via social media.

I am effective in communicating with others for health purposes via social media.

I feel completely capable of communicating about health-related issues with others via social media.

I am able to articulate in my social media communication with others about health-related issues.

My health communication with others via social media is consistently accurate.

I pay as much attention to the way I say things about health-related issues on social media as what I say.

I feel that I am in control of how and what I can say on social media about health-related issues.

Dimension 2: Knowledge

I am very knowledgeable about how to seek out health information on social media.

I am very knowledgeable about how to use online health resources via social media to make health decisions.

I always seem to know how to seek out health information I need through social media.

Dimension 3: Usage
To me, making health decisions based on online health resources via social media is more productive than other methods.

My interactions through social media are more productive than my face-to-face interactions for health purposes.

I am more efficient in using online health resources via social media to make health decisions than using other offline health resources.

I rely heavily upon the health information I seek out via social media for making health decisions.

My social media health information-seeking behaviors are more productive than my offline attempts.

Dimension 4: Motivation

Communicating about health-related issues with others makes me anxious.

I am nervous about communicating about health-related issues with others via social media.

Seeking out health information via social media makes me anxious.