SOCIAL MEDIA USE IN HEALTH CARE: WILL IT BE EMBRACED BY MILLENNIALS?

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ABSTRACT

The purpose of this paper is to analyze the likelihood that the millennial generation will embrace social media as a platform as a means of engaging in healthcare discussions. An empirical study employing use of survey questionnaire is utilized. The independent variables of Perceived ease of use, Privacy, and Localization/Personalization are studied to analyze how they influence attitude to share both general and personal health information on social media and how these in turn affect intention to use health information obtained from social media. We found that Ease of use, & Localization/personalization positively impact attitudes to share both general and personal health information on social media and that privacy concerns are not significant in impacting attitude toward sharing either general or personal health information. Finally, attitudes toward sharing either general or personal health information both positively affect intention to use health information obtained from social media.

Keywords: Millennial; Social Media; Health Care; Health 2.0;

INTRODUCTION

The healthcare field is one of the last major industries yet to tap into social media's full potential (Sarringhaus, 2011). There is no doubt about the potential for innovation and the competitive advantage that social media can bring to healthcare should this avenue be pursued. Millennials are starting to become a sizeable consumer group and have embraced social media wholesale. They are fully immersed in social media use and wonder why the rest of the world is not there with them. It therefore only makes sense that all industries make an earnest attempt to meet these millennials in their arena. It is important to note also that even the older generations have started to increasingly embrace the use of social media. It is a worthy venture therefore to study the trend of this media use in healthcare. Who are these Millennials one would ask? There is no consensus as to the dates that encompass those who are Millennials. One range includes those born approximately between late 1970's and early 2000's (Bannon, Ford, & Meltzer, 2011). Yet some match 1982 (the year when TCP/IP was developed) as their date of birth and on to the late 1990's or even the year 2000 (Robinson & Stubberud, 2012). What is Social Media in the first place? As defined by Merriam-Webster dictionary: "Social media are forms of electronic communication (as Web sites for social networking and microblogging) through which users create online communities to share information, ideas, personal messages, and other content (as videos)." The rapid rise in usage of social media underscores the fact that as a society, we find it rather useful and is seen as an indispensable tool of our current existence. Millennials are any-time any-place learners who prefer to get their information from the internet than from a book, who prefer to learn and take tests online than in the traditional older format, and who are overwhelmingly visual and kinesthetic learners eager to interact with the world through multimedia and not text print (Papp & Matulich, 2011). Being able to get information within a flash of a moment and/or in real time is therefore an enticing feature of social media. The majority of people make decisions regarding what services to use based on people they trust – family, friends and people in their social networks. With social media networks, there is sharing of experiences and dissemination of advice (Hackworth & Kunz, 2011).

Facebook, the preeminent global social networking site, as of April 2012, had 900 million active users globally (Huang & Dunbar, 2013). It allows individuals and organizations to create profiles, share information and be in contact. The Facebook Places initiative created a page for all the hospitals in the US and then leaves it up to these hospitals to

actively engage their clients in this space (Miller & Tucker, Active Social Media Management & The Case of Health Care, 2012). Some of the other players in this arena include Twitter, Instagram, and LinkedIn. Twitter is a microblog site that was initially intended to function such that people are able to disclose their physical location but has now evolved to allow users to share snippets of news, events and other information (Sarringhaus, 2011). Instagram is an online photo and video sharing social network. LinkedIn is a professional networking site. Social media has given healthcare organizations a chance to have a conversation with their clients. Now these organizations can talk to and not at their clients as in traditional mass media (Sarringhaus, 2011). The Mayo Clinic has been successful at building a network with its patient base (Hackworth & Kunz, Health Care And Social Media: Building Relationships Via Social Networks, 2011). The fans/patients who visit the clinic's facebook page use it to research services, health information, as well as to leave comments. Other hospitals have also found similar success in use of facebook as well as some of the other social media sites like twitter, and you tube. Even the recruitment, supervison and retention of new employees who are more likely than not, of the millennial generation, is relying more heavily on social media's contribution (Sarringhaus, 2011).

Though social media use is ubiquitous, it is still in its infancy and it would be worthwhile to explore to see if its use in healthcare is ready to be embraced. In this study, we would therefore be investigating the propensity for millennials to embrace social media use in healthcare. We will analyze how the ease of use, localization/personalization, and privacy concerns affect attitudes toward sharing both general and/or personal health information on social media and how these eventually impact the intention to use social media for healthcare purposes. The ease of use of social media is certainly unquestionable when it comes to millennials. We will investigate if this ease of use or perceived ease of use influences to what extent millennials embrace social media use in health care. Social media as a whole is very popular and seen as an indispensable tool of our current existence. It would be interesting all the same to assess how useful it will be when communicating about health information. Privacy is the ability of individuals to seclude themselves or to selectively release what amount of information they want to release about themselves. Privacy can be said to be more loosely adhered to in the present times as social media has brought down many barriers of inhibition and millennials are ever increasingly sharing their thoughts, activities, and status very willingly. More stringent privacy concerns may however still be an issue where health information is concerned and we intend to see just how much privacy millennials still want to retain. To be able to search for services in the local proximity is also a very highly used feature of social media. That information can be tailored to ones' specific needs (personalization) will make a good argument for why social media can be very useful in healthcare. When people search for health information, they certainly want as close a fit as possible to their needs. Social media therefore is a good tool to investigate where to get this information. Being able to get information within a flash of a moment and/or in real time is also an enticing feature of social media and will thus be investigated as to how this affects its use in healthcare. Millennials have a very favorable attitude towards social media and very freely share information and post inquiries to their network. As such, extrapolating this freedom to healthcare is likely not a far stretch at all. It would be interesting all the same to assess how well social media will be employed when communicating about health information.
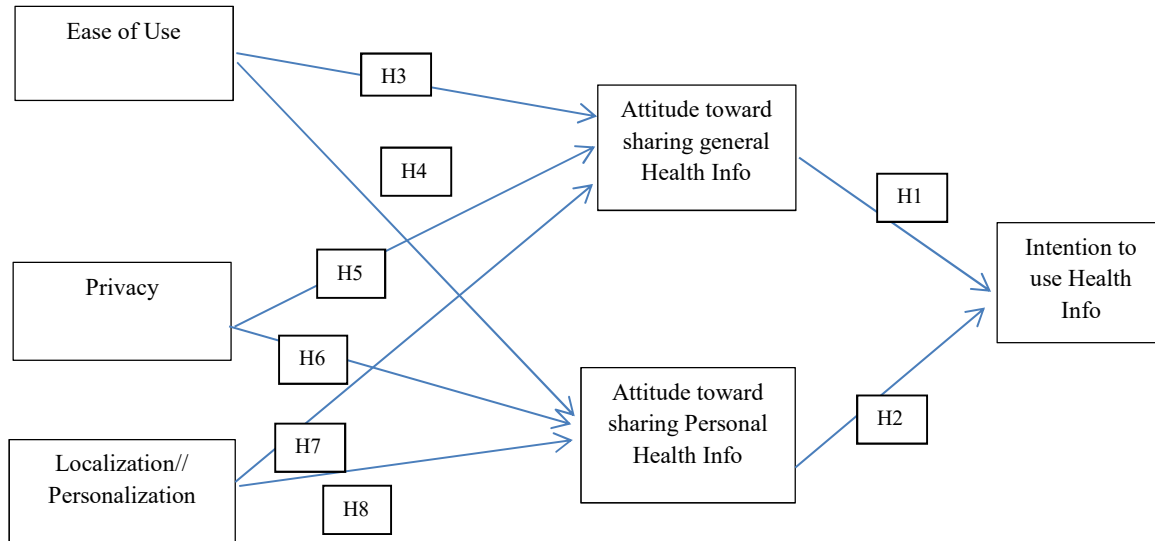
LITERATURE REVIEW AND RESEARCH MODEL

Figure 1. Research Hypotheses Model

Literature Review

Millennials have certainly developed the attitude that web 2.0, of which social media is a fundamental component, is here to stay and that they are very comfortable with it. More than 60 million Americans are consumers of "health 2.0" resources in the form of wikis, blogs, social networks, and streaming media (Hackworth & Kunz, 2011). The 18-24 year old demographic has a very lax attitude about freely sharing information and posting inquiries (Lane, 2012) - extrapolating this freedom to healthcare is likely not a far stretch. By the time the typical millennial is in grade school, they have already become tech savvy. They find digital interaction and web 2.0 culture to be the norm for interpersonal interactions and knowledge acquisition. This extension of the TAM model allows research to be conducted on the burgeoning intent to use of sharing health information. To study behaviors and its acceptance, this extension adds constructs to account for attitude toward sharing general and personal health information.

H1: A user's attitude toward sharing general health information on social media positively affects his or her behavioral intention to use the health information obtained from social media.

H2: A user's attitude toward sharing personal health information on social media positively affects his or her behavioral intention to use the health information obtained from social media.

The ease of use of social media is certainly unquestionable when it comes to the millennials as a group. Millennials grew up with Internet technology and are extremely comfortable with it and it is virtually an extension of their natural environment (Papp & Matulich, 2011). However, even among avid users, higher perceived ease of use results in increased use of the technology, as discussed in Lane & Coleman, 2012. We will investigate if this ease of use or perceived ease of use influences to what extent they embrace social media use in health care.

H3: A user's Perceived Ease of Use of social media positively affects user's attitude toward sharing general health information on social media

H4: A user's Perceived Ease of Use of social media positively affects user's attitude toward sharing personal health information on social media

Privacy is the ability of individuals to selectively choose the amount of information about themselves they wish to share with others. Privacy is however more loosely adhered to in the present times as social media has brought down many barriers of inhibition and millennials are ever increasingly sharing their thoughts, activities, and status very willingly. Digital information can be easily copied and transmitted, and represents a double-edged sword, that can serve consumers with great utility yet at the same time pose a serious threat to privacy (Malhotra, Kim, Sung, & Agarwal, 2004). Millennial users of social media, though a lot less guarded than older generations when it comes to

sharing information, still place significant importance on privacy and will not fully engage if they feel their information is not private (Meharia, 2012). According to Toch, Wang, & Cranor, 2012, users are not only concerned about their private information being accessed, but also that some of this information may flow on to their social contacts.

H5: A user's Privacy Concerns on social media positively affects user's attitude toward sharing general health information on social media

H6: A user's Privacy Concerns on social media positively affects user's attitude toward sharing personal health information on social media

The Internet has certainly proliferated available information on just about every facet of our lives. Social media takes it one step further by giving us an opportunity to share information within our social networks. The millennials are a very impatient generation and want faster and more personalized service. They rely heavily on peer recommendations in making decisions about what services to use. So when millennials need to find a service close to their location, they do what is equivalent to crowd sourcing – they turn to their vast social network and ask for guidance. Social networking platforms will allow patients the opportunity to connect with both formal and informal caregivers (Eysenbach, 2008). That information can be tailored to ones' specific needs (personalization) will make a good argument for why social media can be very useful in healthcare. When people search for health information, they certainly want as close a fit as possible to their needs. Social media therefore is a good tool to investigate where to get this information. New personalization technologies are more accurately able to construct social-based personalization and behavioral profiling (Toch, Wang, & Cranor, 2012). Algorithm-based data mining tools are better able to personalize search results based on users' social media activities and individual transactions (Taylor, Davis, & Jillapalli, 2009). The concept of interactive marketing depends on personalization of information and is actively used in social media platforms. Some sites serve to give patients a place to discuss and seek support about their illnesses (especially for some of the rare diseases). PatientsLikeMe and Inspire are two sites that allow patients, families, healthcare providers, device companies and pharmaceutical companies a venue where they all converge in this same social space to provide support for the patients and their families (Hackworth & Kunz, Health Care And Social Media: Building Relationships Via Social Networks, 2011). Personalization has been shown to have a direct correlation with loyalty to a product or service and that millennials respond to personalized messages (Smith, 2012). Personalization can also pose some crucial challenges. It has the potential to amplify online privacy risks as personalized content in social networks can have the unintended consequence of revealing potentially embarrassing or damaging information (Toch, Wang, & Cranor, 2012). Localization is the characteristic of being able to show the current position of the social media user at a specific time.

H7: A user's Perception on Localization/Personalization of social media positively affects user's attitude toward sharing general health information on social media

H8: A user's Perception on Localization/Personalization of social media positively affects user's attitude toward sharing personal health information on social media.

RESEARCH METHOD

The population of study was friends, family and associates on social media and in email contact. A survey questionnaire was designed and utilized using Survey Gizmo (an online survey tool). The questionnaire was a self-designed tool consisting of a demographic section and a second section with questions intended to assess the propensity of respondents to use health information obtained on social media. In the research model, it had a direction arrow which generate a hypothesis. Its associative relationship hypotheses examine how often certain events co-occur. A Likert scale was employed to capture and score the responses in the second section ranging from Strongly Disagree = 1 to Strongly Agree = 5. See Appendix 1 for all the Likert items and their scores.

The following statistical analyses were conducted: Factor analysis, Principal Component Analysis, Structural Equation Model (Path Analysis), and MANOVA for the reliability test, Construct Validity and Hypotheses testing. Factor analysis was employed to test the validity of the questionnaire and identify determinants for the intention to use a shared health information. and Cronbach Coefficient Alpha was employed to test the internal consistency of the items and hence reliability (Kumar & Parumasur, 2013). 239 respondents completed the survey. The population characteristics are as follows:

Gender: The overwhelming majority of the respondents are women at 62%.

Age: 95% of the respondents are millennials with 1% under the age of 20 but at least 18 years old, 83% between the ages of 21-30 and 13% between 31-35.
Level of Education: A total of 90% of all the respondents have graduated from college and specifically, 51% have graduate degrees or higher and 39% have graduated from undergraduate college. 7% have some college credits and 3% have graduated high school as their highest educational level.
Social Media Sites Usage: 87.9% of respondents use Facebook, 43.9% Instagram, 35.2% LinkedIn, 30.1% Twitter and 4.6% of respondents use no social media at all.
Social media Time Usage: The majority of the people who responded spend at the most 3 hours per day on social media almost evenly split at 45% spending less than 1 hour and 46% spending between 1 and 3 hours. 7% spend 4-6 hours and 2% spend more than 7 hours per day.
Internet Time Usage: The people who spend less than 1 hour per day on the Internet is in the minority at 1%; those spending 2-3 hours, 4-6 hours and greater than 7 hours per day are 52%, 39% and 8%, respectively.

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RESULTS

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The Cronbach coefficient alpha for the reliability determination has a Raw value of 0.948152 and Standardized vale of 0.946098. Both of these are greater than the threshold of 0.7 that indicate a reliable and valid measurement (Meharia, 2012). Reliability is the degree to which there is consistency of repeated measurements (AlSoufi & Ali, 2014).
Only six factors have met the minimum threshold of 0.6 indicating an overall valid test . Validity is how well a test measures what it claims to measure (AlSoufi & Ali, 2014).

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Table 1. Factor loading of items and reliability

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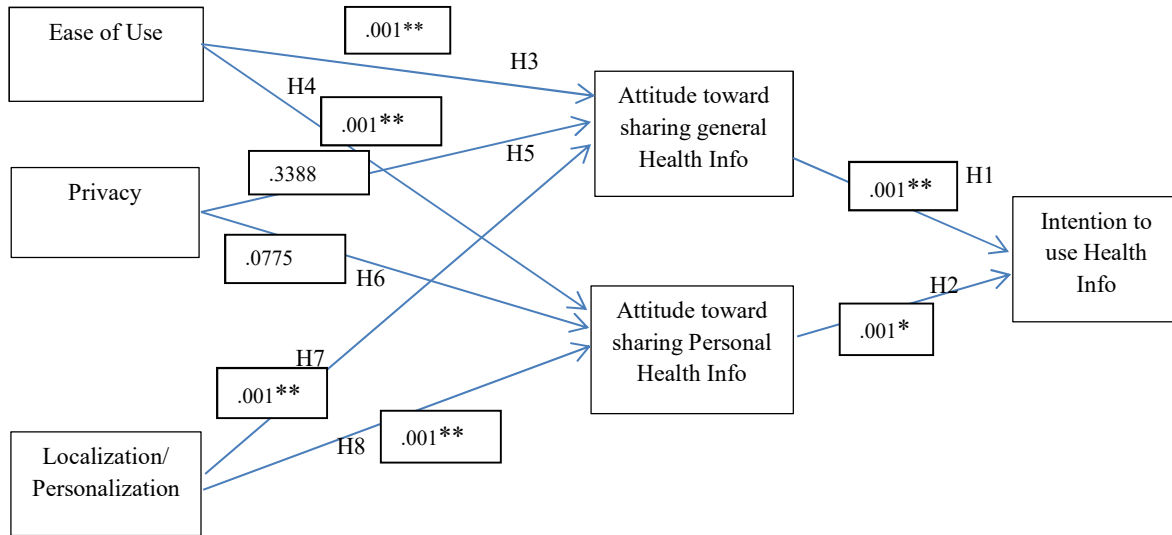| Constructs	Measured items	Standadized Factor loading	Chronbach's α	Chronbach's α	
				Raw	**Standardized**
Attitude toward Sharing General Health Info (AG)	AG1 AG2 AG3	0.88243 0.87863 0.76294	0.944406		
Attitude toward Sharing Personal Health Info (AP)	AP1 AP2 AP3	0.88011 0.85139 0.65505	0.943599		
Perceived Ease of Use (PEU)	PEU1 PEU2 PEU3 PEU4	0.72573 0.63025 0.72598 0.64204	0.946253	0.948152	0.946098
Privacy (PR)	PR1 PR2 PR3	0.64611 0.78989 0.68310	0.947803		
Localization/ Personalization (LP)	LP1 LP2 LP3 LP4	0.69757 0.79357 0.81909 0.72129	0.944682		
Intention to share health information (INT)	INT1 INT2	0.76967 0.75864	0.943271		

Figure 2. Results of Model Estimation

The relationship between user's attitude toward sharing general health Information on social media and Intention to use health information obtained on social media is significant (p< 0.001) and therefore supports H1. Similarly, H2 (user's attitude toward sharing personal health information on social media and Intention to use health information obtained on social media) is significant (p< 0.001) and thus supported. Intention to use sharing health information is defined as the likelihood that a social media user will use a technology. The result of H1 is same as Davis's argument (1989). A major factor of affecting to intention to use is a user's attitude toward sharing health information. Ease of use as it relates to attitude toward sharing general health information and attitude toward sharing personal health information both have p< 0.001 and thus H3 & H4 are supported. Likewise, localization/personalization as it relates to attitude toward sharing both general and personal health information have p< 0.001 and are thus both H7 & H8 are supported.

However, the relationship between privacy concerns and attitude toward sharing general health information (H5) has p < 0.3388 and sharing personal health information (H6) has p < 0.0775 indicating that privacy concerns significantly affect user's attitudes toward sharing neither general nor personal health information. This is a contradictory the result of a previous study which maintains that privacy concerns will correctly predict the attitudes towards use. We assume that social media users are already ready for the expose of their information to the social media to obtain a necessary beneficial information somehow (Maharia, 2013)

CONCLUSION AND IMPLICATION

The results of this study suggest that positive attitudes towards sharing both personal and general health information on social media will lead to intention to use health information obtained from social media. Per our study, both ease of use and localization /personalization have significant positive relationships with attitudes toward sharing both general and personal health information on social media and these in turn have a significant positive relationship with intention to use health information obtained on social media. These findings are in line with what we anticipated seeing prior to the study and therefore support what we believed would be the case – that millennials are ready to embrace social media use in health care. On the other hand, privacy concerns did not have a significant effect on attitudes toward sharing general or personal health information and for that matter intention to use health information obtained on social media. This outcome is contrary to what we anticipated. We believed prior to conducting the study that privacy would be paramount in somewhat holding millennials back from embracing social media use in health

care. The non-significant result thus indicates that privacy will have very little hindrance, if at all, on social media use in health care and for that matter makes it easier for millennials to embrace social media use in health care and also therefore further emboldens our inclination to say that now is the time for social media use in health care.

The Methodist Hospital has been engaging patients on social media since 2009 with a Facebook, Twitter, and YouTube presence (Angelle & Rose, 2011). They use these tools to engage their patients and community at large and have found it a very effective means to share the hospital's culture and find out what their patients have to say. Methodist also tries to make certain that close to half of what it posts addresses clients' questions and concerns and not just to use these platforms for marketing purposes. Methodist hospital's social media use is in fact in line with The Centers for Medicare & Medicaid Services (CMS) standards for patient education (Angelle & Rose, 2011). Another example of how patients are using social media to participate in healthcare is the case of Hello Health patient Rachel Baumgartel who posts her daily tweets about how she is managing her diabetes, what type of diet she has eaten daily, and what her blood sugar and hemoglobin A1c values have been (Hawn, 2009). She has family, friends and social media followers responding to her tweets with words of encouragement and advice. In this manner, she among very many patients, have begun using social media to manage their health.

Scripps Health in San Diego, CA uses twitter to allow its physicians to stay engaged with its 4500 followers (Hackworth & Kunz, 2011). They are able to address patients' concerns, take part in ongoing conversations and keep its followers abreast of new happenings within the company. Quoting a study by Manhattan Research, Hackworth & Kunz, 2011 indicate that more than 60 million Americans are consumers of Health 2.0 and that the numbers continue to grow. Sites like Facebook, YouTube, Twitter, PatientsLikeMe, and Inspire are at the forefront of this revolution. Online collaboration between patients and health practitioners are increasingly displacing the one-to-one conversations between doctors and patients that used to be the norm (Hackworth & Kunz, 2011) and that consumers especially with chronic conditions, are the ones leading this new interaction. A 2009 Harris Interactive survey found that 47% of Americans across all age groups are ready to engage their health care providers on social media (Hackworth & Kunz, 2011). The results will not only show where millennials stand in this potential for social media to play an active role in health information, but also will contribute towards the understanding of what excites them about this as well as what their hesitations are. With the findings of our study (indicating that millennials are ready for social media in health care) and with the review of the literature relating to millennials and their readiness to embrace social media use we believe that the time is now for health care organizations to venture more earnestly into implementing social media as part of their communication package as millennials are ready for this next big occurrence in health care. The question being asked (Social Media Use in Health Care: Will it be Embraced by Millennials) will receive a resounding yes from us – we believe millennials are at the forefront of this new wave and will fully embrace social media use in health care.

LIMITATIONS AND FUTURE STUDY

The limitations of this study centers on not having had the opportunity to run a pilot study prior to doing the actual study. Also, the overwhelming majority of our respondents (90% being college graduates and 51% with graduate degrees or higher) are not representative of the American population. This skew resulted from the fact that we emailed the survey link out to friends and students of a local medical college and associates on social media (namely Facebook). These associates being the majority of the respondents, like us, are in college for graduate training of higher. For future purposes, a more rigorous study might need to be done in comparing the impact of cultural differences in other countries. Also, the respondents were greatly skewed in favor of college graduates and graduate degrees or higher. Also, the respondents were greatly skewed in favor of college graduates and graduate degrees or higher. There might be also a room to consider future research to respondents without college or above degree.

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APPENDIX

MEASUREMENT ITEMS

Items	Reference
1. Attitude toward sharing general health information on social media	
Exchanging general health information on social media is a good idea	(Hackworth & Kunz, 2011)
Exchanging general health information on social media is beneficial	(Hackworth & Kunz, 2011)
Exchanging general health information on social media is interesting	
2. Attitude toward sharing personal health information on social media	
Exchanging personal health information on social media is a good idea	(Hackworth & Kunz, 2011)
Exchanging personal health information on social media is beneficial	(Hackworth & Kunz, 2011)
Exchanging personal health information on social media is interesting	
3. Perceived ease of use of social media for health information	
It is easy to become skillful at using social media	(Papp & Matulich, 2011);
The interactions on social media are clear and understandable	(Papp & Matulich, 2011);
It is easy to perform the steps required to use social media	(Papp & Matulich, 2011);
It is easy to interact with social media for health information	
4. Perceived Privacy	
I am concerned that my personal health information would be shared with others on social media	
I feel uncomfortable with the information being collected about me on social media	
I believe that more information than is necessary is being collected from me on social media	(Malhotra, Kim, Sung, & Agarwal, 2004)
5. Perceived Localization/Personalization	
I believe social media provides me with information for access to health care near my area at any specific time	(Toch, Wang, & Cranor, 2012)
I believe I have found health treatment or service close to my current location because of social media	
I believe social media provide the right health information that fits me best	(Eysenbach, 2008); (Toch, Wang, & Cranor, 2012)
I believe social media provide differentiated health information, treatment and service	(Toch, Wang, & Cranor, 2012)
6. Intention to use the health information	
I will use health information from social media given the opportunity	
I am willing to use health information from social media in the near future	