How Does Social Media Affect Health Communication?

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Abstract   In this paper, we examined the role of social media in health communication using documentary method and netnography in a descriptive-analytical evaluation. Over the past two decades, the Internet has made a paradigm shift in business activities that led to the development of numerous technologies, such as Web services and applications for companies. The majority of health institutions do not have appropriate infrastructure to take advantage of the capabilities of this new technology. The reason of which is primarily the fact that health care greatly relies on face to-face interaction between the patient and physician. Advances in the Internet technology and social media have allowed sharing information remotely in different geographical regions and facilitated health care. Different terms have been presented for doing health care practice, such as E Health, online health, cyber medicine, and consumer health informatics so that these systems have improved the patient care performance, reduced costs and improved workflow. So, social media should be a part of health system programs provided to people through needed information; also, they can be used to make social relationships between groups with common characteristics and reduce stress caused by chronic diseases and patients' behavior change.

Keywords   Communication, Health, Social network, and social media

1. Introduction

Prior to the adoption and widespread acceptance of the Internet as a source of health information, people received health information from many sources of information such as the physician, family members, acquaintances and mass media. Since 2000, the dependence of people on the Internet search engines has been increased, because the search engines have allowed access to all the web pages around the world. [1] So it can be said that we live in a time of expansion in access to health information. Data that previously could be obtained by spending hours researching medical libraries, all can be readily found by Internet access. Thus, the ability to acquire extensive knowledge of research findings from many different medical specialties has been increased. However, medical specilists are not the only people who search the Internet for such information. Also, patients have the ability to search a medical topic entirely via the Internet. [2]

The results of research indicate that the use of social media in America has been increased from 8 percent of adults in 2005 to 67 percent in late 2012 and to 72% in 2013. [3]

So, new technologies in the form of the Internet use affect the health environment, and patients are increasingly using the Internet both as a source of information and psychological support. [4]

Healthcare information for which patients are looking on social media and the Internet are different. The important point is that most people who are interacting with online health care seek to fulfill the unmet need that is either information or support. [3]

Regarding these characteristics, we can use the potential in a positive direction by carefully studying and identifying the functions of social media and their effect on audience. One area that seems to have the potential to use the social media in different areas is the field of health; in this paper, we made an attempt to examine the functions of social media for health information researchers.

1.1. Theoretical Principles

Research on social media sites has been increased exponentially in recent years. Scientists have conducted studes in a variety of fields on consequences of social media sites in human, moral, social and medical fields. Now, we are not only in the information age, but we live in an age of interactivity that creates abundant opportunities for multiple areas including health education and healthy behavior to change the health behavior. [5]

Due to easy access, providing information in audiovisual

and interactive formats and links to navigate to other related Web sites, the Internet is an ideal environment for the dissemination of health information to the public. [6] Online forums are a rich source of data that provide many opportunities to explore real-time interaction on the issues that are important to people. [7] It seems that the Internet can be an important source of providing information about the medical and psychological issues related to diseases and their treatment. By using the Internet, we can not only change the patients' image about their health, but also follow behavioral health changes. So, online information collection can lead to greater patient interaction in their health and maintenance. [8]

Internet-based intervention, called ayntrapy, is also economically affordable, since access to the therapist is not possible for all the people; on the other hand, some people, such as those who have agoraphobia, may not be able to leave the house and pass long distances. The Internet treatment programs can be used in this area. [9]

On the other hand, educational function of the virtual sites can also be useful for patients. The purpose of patient education is to help improve the quality of life, promote physical and mental health, and boost their self-esteem. Patient health education encompasses all educational activities related to the patient, including healthcare education and clinical health promotion done to help the patients make informed decisions about his disease and acquire self-care skills. The participation of patients and the community in health through educating patients and caregivers leads to increased satisfaction and trust of clients, reduced anxiety and emotion of patients, more understanding of individual needs, specialists' positive and better relationships, and lasting and positive impacts on health. Patient education can reduce the treatment costs greatly through helping patients to manage chronic conditions of the diseases. The use of effective educational materials for patient education contributes to understanding the complexities of medical processes for the patient and reducing the level of stress and anxiety. Educational sources have the ability to make the communication practical and improve health. Increased knowledge of the patient can develop treatment outcome of acute and chronic diseases. For example, in the event of a disease, people are motivated to seek treatment and follow it. [10]

Although the Internet has great potential for public education and convenience for patients, in some cases spreading misleading or even fake information actually leads to poor medical care. As a result, websites can be powerful sources for education; on the other hand, because the information is widely available, some patients with the impression that all sites are equal may obtain misleading or incorrect information. More over, the information obtained from the Internet may be in conflict with the advice provided by physicians, thus leading to confusion and uncertainty in patients. The consequences of this uncertainty may be a delay in treatment and/ or inappropriate treatment forms.

Dominick et al. (2009) noted that studies have shown that computer programs and web-based health education have been successful to improve knowledge, health and management of a disease. For example, using the Internet helps to understand the cancer patients' better health outcomes and also reduce medical uncertainty and depression. For patients with breast cancer, the Internet has resulted in reducing loneliness levels, increasing social support and helping them to participate more actively in their health care decisions. Similarly, web-based tools used to care the patients with asthma, support decision programs about prostate cancer, and diabetes patient education have assisted in improving knowledge and understanding of the disease. In this type of online interventions, the purpose is to increase knowledge of the disease or health behavior change. In addition, online interventions should be submitted at an understandable level for all people at different cultural and literacy levels. [11]

So, today health care is changing and the Internet has been turned into a mass-expanding body of information and now with the increase in health-related information via the Internet (e.g. e-health), health-based organizations should follow standardization and make the words understandable to the public. [12]

In the healthcare ecosystem, there are many ways to use and share digital health data, with the help of the Internet as a reliable and safe means. Various terms have been proposed for doing such health care practice such as eHealth, online health, online medical and consumer health informatics. The systems have improved the performance of patient care, reduced costs, and improved workflow.

Online management of health care refers to all activities that facilitate health care provision and management using data electronic transmission, storage and retrieval, through the Internet primarily in a private and secure environment. [13]

Social media, as a sub-branch of the Internet and virtual media, facilitate sharing health information between users and create new knowledge formed through personal experience. Social media can provide an important space for people with the disease to assiciate, participate in activities, and improve efforts for resistance against complications of the disease.

Applications such as blogging now contributes to facilitating the patients' changed role in which patients increasingly are present both actively and specifically on the disease and treatment through online search and share of health information in interactive networks. It seems that physicians encourage these activities and welcome patients as partners in health care. People with active disease in social media are often known as powerful citizens in the technology actively in self-care program. [14]

Today, social media function in the field of social health has been increasingly considered by health policy-makers and planners. Social media according to the capabilities can contribute to the formation of effective health communication, media should be a part of health system programs through which the required information is

provided to people. It seems that we can use these tools in order to make social relationships between the groups with common characteristics and reduce stress caused by chronic diseases and behavioral changes for patients. Thus, according to the specific capabilities of social media, in this study we made an attempt to identify the functions of social media in health communication.

1.2. Research Background

As a source, the Internet is potentially a much better response than the usual care to the patient's needs for autonomy, competence and communication. Anonymity and ease of access at home and at any time caused more support in terms of independence by removing geographical, temporal and financial boundaries. A rich variety of information and support tool (e.g. consulting, treatment planning, and changed behavior support) can provide a wide range of appropriate support and make the patient able to control his state. Aware patients may ask better questions, more effectively manage their disease, and even monitor and intervene to improve their health. Chat groups may help prevent the disease and social support as an alternative; also, common networks may change their disease process. [15]

For someone living with a chronic disease, having extensive information is necessary. However, information provided by health experts can sometimes be scattered, inconsistent and random, so that when patients find out the advisors do not have enough time to answer their questions, their information need can be met by contact with relevant support forum or through online support forums. Health advocacy groups are voluntary organizations made aiming to help, advise, provide friendship and emotional support to patients, caregivers, and patients' families. The service groups provide the possibility of contact with other people with similar chronic disease, trust and access to a wide range of practical information. Many health support groups have now made their websites according to their special conditions which provide access to many services, valuable information and direct support with no need for the people's presence. [16] social media can influence the people, control and support them. [5]

In general, the function of media in the field of health has been proven in many studies; according to a global release, the use of the media and public education can play an essential role in the prevention of different diseases and increase public health of the community and "life expectancy". Media have two effects on human: they are both capable of imposing severe psychological distress and inversely reduce one's stress. On the other hand, virtual social media can provide acceptance or change of health behavior, and social and emotional support for the public. Also, discussions on medical and health problems are provided through the media and due to cultural limitations we cannot talk about them. [1]

Diaz et al. (2002) in their paper made an attempt to find out how many people obtain medical information through the Internet and if they trust in the obtained information. The study results showed that at least 27% of people use information available in the Internet on diseases or drugs and most of them trust in such information. [17]

Ziebland et al. (2004) conducted a study to discover how men and women with cancer use the Internet through a qualitative study, using a semi-structured interview. Respondents were interviewed across the UK during 2001-2002.

Participants were 175 men and women aged 19-83 years, with one of the five cancers (prostate, testicular, breast, cervix, or bowel) and in various stages of treatment and follow-up. The results of the interviews showed using the Internet has been reported, either directly or through friends or family, widely by patients at all stages of cancer care, from initial research to follow up after treatment. Patients use the Internet to find ideas, support and use other people's empirical information, interprete the symptoms, search for information about testing and treatment, help to interpret the advice, ask questions from physicians, ask anonymous private questions, and raise awareness about their cancer. [18]

A study was conducted by Seale et al. (2006). In this study, a new method was used, analyzing adaptive keywords in 97 interviews in 2 Internet-based support groups to compare those with cancer. Seale et al. considered web forum as a rich source of information on experiencing the disease and gender differences and stated a significant difference in gender function. They found that men with prostate cancer use the Internet to search information but women with breast cancer seek social and emotional support, and their concern is the effect of the disease on most of the cregivers. This study indicated that although web forum has in fact a public and observable action, it seems both genders use it as a relative private space to share personal information experienced. [19]

In a study on several countries that use information technology and education level, it was found that as literacy skill level of people is increased, perceived usefulness of computers, diversity and intensity of the Internet usage is also increased. This study has shown that people with limited literacy skills have less knowledge to control the disease and heath enhancing behaviors; also, people have shown poorer health state and it is not likely that they use preventive service to those with moderate or high literacy skill. [20]

Leimeister et al. (2008) in their paper examined whether online communities potentially make an environment for patients to overcome the disease through social support? This paper's purpose was to develop and test the efficiency of forming virtual relationships in virtual communities for patients with cancer. Data were collected through a survey of 301 patients with cancer in a virtual environment. In this study, they concluded that virtual relationships for patients play an important role in meeting social needs. Feeling support and information share through the virtual relationships helps the patients cope better with their disease. [21]

Høybye et al. (2010) in another study examined social and

psychological characteristics of Danish cancer patients who used the Internet for support. In this study, they invited 230 patients with cancer participating in a public rehabilitation program to participate in an Internet program including education of information retrieval related to cancer. In this study, 47% of the subjects were motivated to join the Internet. By studying the group compared with those who had no incentive to join the group, the results showed that no significant difference was observed between the two groups in terms of life quality and mental health while preventing the disease is relatively related to participants in the Internet support groups. [22]

Huang et al. (2012) in their paper examined the patients' tendency to use interactive media to find information related to treatment, surgery, etc. Using 242 patients' opinons through Delfi technique, they concluded that patients prefer access to hospitals' health service through social media. [23]

2. Method

Due to limitations of research methods such as interview and questionnaire, they are not capable of assessing the people's actual experiences and emotions; however, in the recent years, using ethnography has contributed to understanding their emotions and behaviors.

In the late 1990s, by introducing netnography to study online communities by Kozinets the researchers widely adapted and developed ethnographic methods based on reflective narratives published online, and they considered it as a new qualitative research method, compatible with ethnographic research techniques which study the cultures and communities emerging through computer-mediated communication. [24]

Netnography has 6 steps, some of which overlap:

1. Research Design
2. Login to the field
3. Data collection
4. Commentary
5. Ensure compliance with ethical standards
6. Research.

Also in this study, in addition to the use of descriptive-analytical method to understand the topic, netnography has been used to discover social media aspects to help the patients to understand the topic. Netnography is widely used as a research method in online researches; in Iran a few studies have been conducted in this field, so this contributes to a new standard set of conducted research in this field.

To log in to Google, we searched a combination of the following keywords websites appropriate for this study: "Health", "Forum", and "Patients". As a result, plates, pages such as http://www.msworld.ir and http://forum.iransalamat.com were found.

The second stage includes data collection. In this study, through the direct copy of the comments of the members of the online community on the sits' news, the data were collected. In data collection, especially on the experiences and comments of members, it has been tried to **consider** the relevance and completeness.

The selection process is shown in Table 1.

Table 1. The names of selected sites and number of comments

The Selected Site adress	items	Number
http://www.msworld.ir	papers	10
	comments	40
http://forum.iransalamat.com	papers	15
	comments	50

In this study, data were analyzed simultaneously with collection by quanlitative content analysis by data constant comparison.

Data were collected and analyzed regarding the study purpose, i.e. understanding social media aspects in health communication at 6 stages of 1- The researcher's familiarity with data, 2- Generation of initial codes from data, 3- Search to find themes by a review of different codes extracted in the previous steps, 4- Review of the themes and re-comparing them to data to ensure the accuracy 5- Defining and naming themes and 6- Preparing the final report.

Also in this study, methods were used to ensure the accuracy and reliability of the data, including supervisors' review. In this way, parts of the interview text were sent to several supervisors with related codes and classes to examine the analysis process, and comment on the items' accuracy. To calculate the reliability, two encoders' intersubjective agreement method (evaluator) was used. In this method, the codes that are the same from the perspective of 2 persons are specified as "agreement" and non-similar codes are specified as "disagreement". In this study, the reliability between the two encoders using the formula was 73%, higher than 60%, so the encoding reliability was confirmed.

3. Results

The analysis of the netnography of social media aspects in health communication is given as follows. After specifying initial concepts, 390 initial codes were extracted from the total items. The codes after several reviews were summarized and classified based on the similarity and fitness; then after the review and comparison of their inner meaning, the classes were identified as primary themes. Primary themes were named according to their nature, as conceptual and abstract. Thus, the themes showed the nature and aspects of social media in health communication. These aspects include: 1- social support, 2- desire to be encouraged, 3- education, 4- notification, and 5- experiences.

1. Social support: Patients and people seeking for health information noted that when attending the forums and interacting with other people, they forget their own problems and diseases; they said when they are not attending the forums, they are subject to isolation and depression.

2. The desire to be encouraged: Patients noted that they are much more motivated for the disease follow-up and health control with respect to interaction with others and obtaining information.
3. Education: The members of these sites express satisfaction with preventive education, but in order to evaluate the efficacy of such education on prevention of some diseases, further studies ae recommended.
4. Notification: One of the most important emerging fields in this study was notification by users; it seems that social media can be a great tool for the implementation of educational programs and information about the health field.
5. Experiences: Online chat room allows the patients to share their experiences of the progression of the disease, their symptoms and overall health status. Patients can connect with those who are experiencing similar conditions, get more information and have better understanding of their health. They can have a real picture of what happens in life with the disease, based on the experiences of others. They can also obtain a clearer picture of the disease progression schedule and know the symptoms as warning signs of exacerbation. The function of social media for patiants is proved in other studies. [25, 26, 27]

4. Conclusions

Given that there are a lot of discussions about social media in different fields, this study helps to explain understanding social media aspects in health communication. The findings of this study showed that the patients connecting to health-related sites benefit from these sites for various incentives. In this study, 5 aspects were obtained as the sites' function in health communication. First, the patients as well as those who search about health information stated that when they attend a forum and interact with people, they forget their problems and diseases and stated that in the absence of forums they become isolated and depressed. Second, the patients stated that, getting more informative, they had motivation for the disease follow up and conrolling health after attending the forums. Third, the sites' members were satisfied with preventive education but a separate research is needed for the effect of eduction on preventing some diseases. Fourth, one of the most important emerging fields in this study was notification by users. It seems social media can be a great tool for the implementation of educational programs and notification about the health problems. Finally, online chat room allows the patients to share their experiences on the progression of the disease, symptoms and overall health status. By connecting with those who are experiencing similar conditions, the patients become more informed and have better understanding of their health. They can have a real picture of what happens in life with the disease, based on the experiences of others. They can also have a clearer picture of the disease

progression and know symptoms as warning signs of exacerbation. Also, by a descriptive study using library method, different aspects of social media functions were studied; some aspects were consistent with the findings by netnography. For example, Fogel (2002) showed that patients increasingly use the Internet both as a source of information and psychological support. Also, Aitken et al. (2014) showed in US for specific diseases, the social media consider health, care and prevention, health behavior change, lifestyle and health insurance details and 70% of Canadians have used the internet for health information, and 92 percent of them using Google search engine, rather than a health portal have collected health information. Cook (2008) has also stated educational function of cyberspace can also be useful for patients. The purpose of the patient education is to help improve the quality of life, physical health, mental health, and boost their self-confidence.

Finally, this study also has its limitations. A large part of medical information with different opinions is available on the Internet fot the patient, so evaluating the quality may be difficult because the reliability of the data cannot be confirmed. And data confidentiality breach may occur; of course, in this study it has been attempted to use public forums that are visible to the public as much as possible.

Eventually, the related organizations can apply this study results to plan optimal administration of social media for health issues. Through proper monitoring, they prevent developing incorrect information and use this tool to support, educate, and inform the patients. Also, according to the new research topic the need for further research is necessary in order to complete the literature regarding cultural and economic environment of the country.

ACKNOWLEDGMENTS

REFERENCES

[1]   Hamshahri training center (2013) health communication and and social media. Available at: http://www.hamshahritrainin g.ir/news-3709.aspx.

[2]   Biermann, JSGGJ, Golladay, GJ., Greenfield, MLV., & Baker, LH. Evaluation of cancer information on the Internet. *Cancer. 1999;* 86(3): 381-390.

[3]   Aitken M, Altmann, T., & Rosen, D. Engaging patients through social media - Is healthcare ready for empowered and digitally demanding patients?. 2014: Available at: www.imshealth.com/.../IIHI_Social_Media_Report_2014.pd f.

[4]   Fogel, J. Internet use for cancer information among racial/ethnic populations and low literacy groups. Cancer

control. *Journal of the Moffitt Cancer Center.* 2002: 10 (5 Suppl): 45-51.

[5]   Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). Health behavior and health education: theory, research, and practice. John Wiley & Sons. 2008.

[6]   Williamson, J.M., & Hocken, D.B. Assessing the internet prevalence of cancer. *International journal of clinical practice. 2011:* 65(2): 178-181.

[7]   Keeling, D., Khan, A., & Newholm, T. Internet forums and negotiation of healthcare knowledge cultures. *Journal of Services Marketing.* 2013: 27 (1): 59 – 75.

[8]   Muhamad, M., Afshari, M., & Mohamed, N.A. Internet Use and Breast Cancer Survivors. *Turkish Online Journal of Educational Technology.* 2011: 10(4): 241-247.

[9]   Omidvar, A. Behavior modification behavior therapy. *Fara angizesh publishers.* 2006.

[10] Cook, D., A., Levinson, AJ., Garside, S, Dupras, DM., Erwin, PJ., & Montori, VM. Internet-based learning in the health professions: a meta-analysis. *The Journal of the American Medical Association.*2008: 300(10): 1181-1196.

[11] Dominick, G., Friedman, D., Hoffman-Goetz, L. Do we need to understand the technology to get to the science? A systematic review of the concept of computer literacy in preventive health programs. *Health Educational Journal.* 2009. 68(4): 296-310.

[12] Baggott, C. Patient education: to the Internet and beyond. *Pediatric blood & cancer.* 2011: 57(1):6-7.

[13] Desikan, P., Sathyanarayana, A., & Srivastava, J. Online Healthcare Management. In Encyclopedia of Social Network Analysis and Mining. *Springer New York.* 2014: 1182-1193.

[14] Sosnowy, C. Practicing patienthood online: Social media, chronic illness, and lay expertise. *Societies.* 2014: 4(2): 316-329.

[15] Gustafson, D., Hawkins, R., McTavish, F., Pingree, S., Chen, W., Volrathongchai, K., Stengle, W., Stewart, J., & Serlin, R. Internet Based Interactive Support for Cancer Patients: Are Integrated Systems Better? *Journal of Community health.* 2008: 58(2): 238-257.

[16] Harrison, S., Barlow, J., Williams, G. The content and interactivity of health support group websites. *Heal. Educ. J.*2007: 66(4): 371-383.

[17] Diaz, JA., Griffith, RA., James, J., Reinert, SE., Friedmann, PD. and Moulton, AW. Patients' use of the internet for medical information. *Journal of General Internal Medicine.* 2002: 17 (3): 180-5.

[18] Ziebland, S., Chapple, A., Dumelow, C., Evans, J., Prinjha, S., & Rozmovits, L. How the internet affects patients' experience of cancer: a qualitative study. *British medical journal.* 2004: 328(7439): 564.

[19] Seale, C., Ziebland, S,. & Charteris-Black, J. Gender, cancer experience and internet use: a comparative keyword analysis of interviews and online cancer support groups. *Social science & medicine.*2006: 62(10): 2577-2590.

[20] Norman, C. D., & Skinner, H. A. eHealth literacy: essential skills for consumer health in a networked world. *Journal of medical Internet research*, 2006:8(2).

[21] Leimeister, JM., Schweizer, K., Leimeister, S., & Krcmar, H. Do virtual communities matter for the social support of patients?: Antecedents and effects of virtual relationships in online communities. *Information Technology & People.* 2008: 21 (4): 350 – 374.

[22] Hoybye, MT., Johansen, C., & Tjørnhøj-Thomsen, T. Online interaction. Effects of storytelling in an internet breast cancer support group. *Psycho-Oncology.* 2005: 14(3): 211-220.

[23] Huang, E., Angela, C., Chiu-chi, & Khurana, P. "Users' preferred interactive e-health tools on hospital web sites". *International Journal of Pharmaceutical and Healthcare Marketing.* 2012: 6 (3): 215 – 229.

[24] Rageh, A., Melewar, TC., & Woodside, A. Using netnography research method to reveal the underlying dimensions of the customer/tourist experience. Qualitative Market Research: An International Journal.2013: 16(2): 126-149.

[25] Agha Zade, H., Habibi, L., Roshandel, Arabtani, T., Moghimi, Sarani, E., Farpour, HR. Functions of Social Networks in a Community of Cancer Patients: The Case of Instagram. *International Journal of Networks and Communications.* 2017, 7(4): 71-78.

[26] Toma, C L. Feeling better but doing worse: Effects of Facebook self-presentation on implicit self-esteem and cognitive task performance. *Media Psychology.* 2013; 16(2): 199-220.

[27] Graffigna, G, Libreri, C., Bosio, C. Online exchanges among cancer patients and caregivers: constructing and sharing health knowledge about time. *Qualitative Research in Organizations and Management: An International Journal.* 2012: 7(3): 323-337.