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Antecedents of e-knowledge Usage by Medical Web Portal visitors

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ABSTRACT

Internet has spawned many portals disseminating health related literature. The growing trend of consumers to seek information about health related issues poses both opportunities and challenges. On the positive side, the internet provides the user with easy access to medical information and on the negative side; the internet may be providing the user with unreliable information and cause great harm. Our study explores the antecedents for the use of such information and proposes a model using theoretical underpinnings. It also looks at how users discern the validity of health related information they get on the web.

Keywords

E-health, social norms, internet, web-usage

INTRODUCTION

The growing trend consumers of health products and services to take greater responsibility for their own health and well-being, poses both opportunities and challenges. Visiting websites for a second opinion, involving in self medication or at times bypassing professional help is increasingly becoming popular. Both technology infusion as well as technology diffusion is taking place in the use of internet for medical help. It has even led to coining of a new word “cyberchondria” that refers to people seeking online information for health related issues and indulging in self diagnosis / medication (Shaw 2002)

In the past researchers have studied the use of Internet for online shopping and have proposed models explaining such phenomenon. Visiting an online health portal for health related issues, however, additionally involves, among other things, possible health related risk, ethical and legal issues and therefore differs from on line shopping. This phenomenon has generated wide interest amongst academicians and practitioners to study the motivation and behavior of users of such portals. Table 1 provides a representative list of benefits and impediments faced by the industry and users in using health care websites.

This research is oriented towards studying the behavior of patients, consumer, or general public who access health related websites to enhance their knowledge, henceforth referred as users. Using theoretical basis, we formulate a comprehensive model for e-health knowledge usage to explain this behavior. This paper is primarily concerned with this aspect of provisioning health care information through websites to the consumers in general and the usage of such websites by the consumers in particular.

Organization of this paper is as follows: in the next section we review the literature on e-health knowledge. The subsequent section presents a model for e-health knowledge usage using existing theory. The following section discusses the limitations and future research directions and concludes the paper.

Benefits	
Health Industry	
Eliminating mistakes	(Bentivoglio 2000)
Cutting costs	(Wojcik 2004)
Richness and reach	(Simmons 2001)
Users	
User empowerment and control	(Bentivoglio 2000; Weber 1997; Wojcik 2004)
Counseling and on-line communities	(Sternberg 2003)
Diagnostic tools	(Simmons 2001)
Online support groups	(Sternberg 2003)
Perceived Impediments	
Health Industry	
Complicated IT requirements	(Gardner 2000)
Outdated Federal rules and regulations	(Bentivoglio 2000)
Users	
Cultural factors	(Loch, Straub and Kamel 2003)
Security	(Sternberg 2003)
Privacy	(Earp and Baumer 2003)
Questionable practices	(Fung, Woo and Asch 2004)
Fraud / Malpractice	(Meadows 2005; Weiss 2004)
Clinical, ethical, financial legal implications	(Weiss 2004)
Table 1. Benefits / Impediments in Usage of Health Related Websites	

LITERATURE REVIEW

Internet has transformed the way information is disseminated across many spheres and healthcare is no exception to it. In this context, it has also transformed social norms by empowering patients with information and has brought about social changes. One such change is the increasing use of internet by the general public to gain access to medical information as well as products, at times bypassing the traditional route of patient to doctor to pharmacist. Coile Jr(2000) highlight nine areas of Internet use in healthcare and one of the area mentioned by them is to provide health advice to consumers. In this context, Internet has provided both knowledge and social support to the consumers (Gupta and Abedin 2004)

The impetus for using health portals comes from various participants and enabling mechanism of the health care delivery system (Figure 1). The participants include: medical professionals like doctors, nurses; drug companies; insurance companies to name a few. Without any doubt, technology also plays an important role in influencing usage.

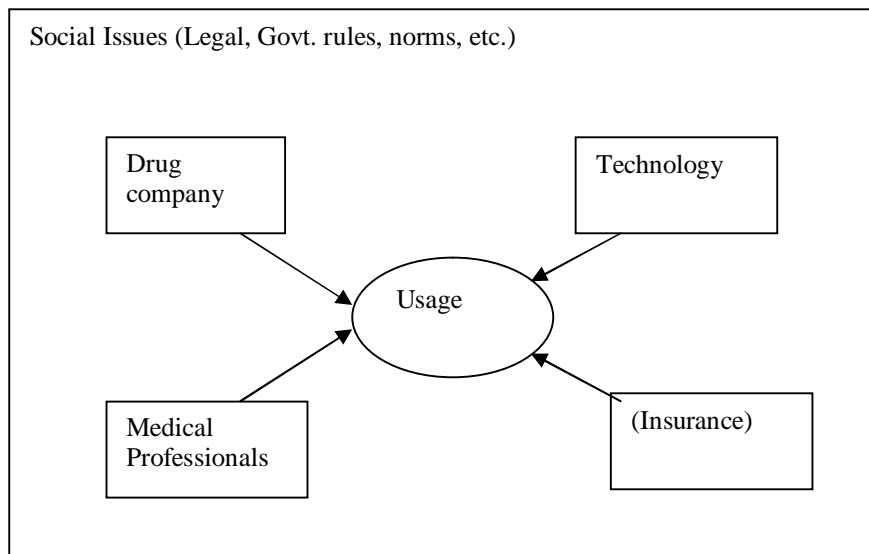


Figure 1. Influencing Factors in e-health usage

In order to overcome their dependence on physicians, hospitals and other medical institutions (Slavens 2004), the drug industry is taking full advantage of the internet as a solution by leveraging the new e-business scenario to the fullest extent. Also, as noted by McKillen (2005), drug companies are reducing costs by having consumers visit their websites instead of talking to a call center employee.

Doctors also visit websites to gain more knowledge and even recommend websites to patients (Slavens 2004). Doctors may also advise their patients to visit health portals in order to gain better understanding of their health condition (Anonymous 2004). Slavens (2004) cites Manhattan's Research study that found 57% of surveyed doctors advice their patients to visit consumer website.

Advancements in Internet technologies have enabled personalized portals where users can maintain their health profile. Online communities related to particular ailment with real-time interactive chat sessions are burgeoning. The portals have technologies which help in interactive diagnosis of illness / diseases. Health oriented Blogs too have appeared in recent times.

Underlying social behaviors also have played a catalyzing role in bringing about this change. Consumers voluntarily visit online sources for information about the medication they are prescribed (Anonymous 2002). One human factor is embarrassment at been "found out". A classic example is Viagra, a prescription drug. The market for Viagra is immense and although it is a prescription drug, thousands of illegal sites with fake Viagra cater to the market. Due to rising costs employers are using an online health-risk assessment tool to drive consumers to lead healthier lives (Shreve 2004).

The Internet appears to be used as a surrogate for medical advice among patients who lack insurance coverage or otherwise find it difficult to obtain care (Millard and Fintak 2002). Privacy of information provided online is of concern to the consumers and (Earp et al (2003) found that consumers are more willing to provide personal information to health oriented website than to retail or financial websites.

Gummerus et al (2004).studied the impact of trust in the use of online content based health care service. Menon et al (2002).also found that trust in the online information about prescription drug influences the actual use of it. Luo et al (2004) mention about the need for higher trust for health information oriented sites than other types of websites.

Many online health specific portals provide mechanisms for social support to the consumers affected with a particular illness and they could come in the form of online-communities. Online communities allow the users to share their thoughts and experiences with similar users (Sternberg 2003).

RESEARCH MODEL

Use of e-health knowledge by consumers can be explained through theories from social psychology. These theories explain behavior of a person based on his beliefs, intentions, and social pressures. The model proposed in this paper is based on,

Ajzen's 'Theory of Reasoned Action' (TRA). It claims that human behavior is influenced by the behavioral intention. Behavioral intention is in turn influenced by attitude, and subjective norms. This theory has been used widely in different domains to predict human behavior. In the Information Systems arena, the well known 'Technology Acceptance Model' is based on TRA (Davis, Bagozzi and Warshaw 1989)

Our proposed model for e-health knowledge usage is presented in Figure 2. The main thesis of this model is that usage of health care website is contingent on the users' belief and attitudes towards the website and subjective norm. Fishbein et al (1975) distinguishes two different kinds of attitude: attitude towards objects, and attitude towards behavior. Our model incorporates both of these types of attitudes and there are past instances of such usage (Loken 1983). The following paragraphs describe each component in detail.

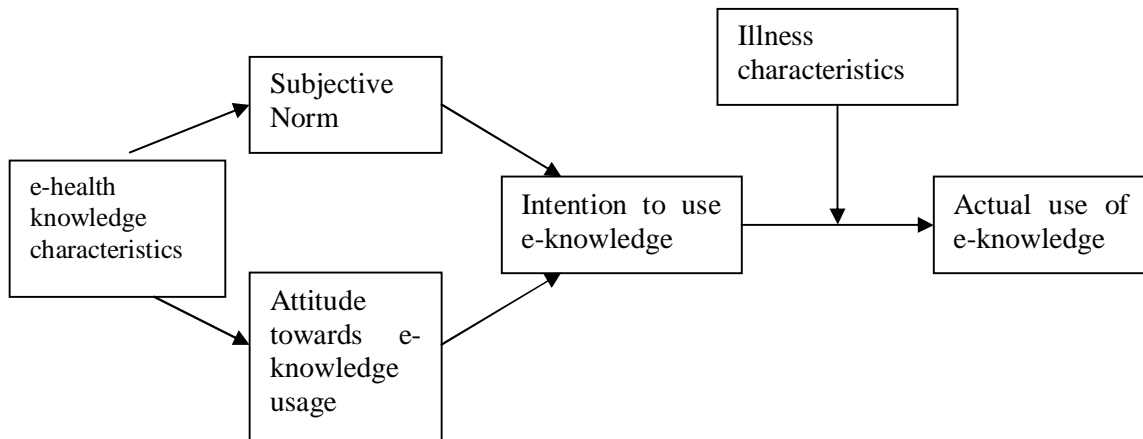


Figure 2. Model for e-health knowledge use

E-health knowledge characteristics

Attitude towards the object indirectly influences the actual use of healthcare websites. In this case, attitude towards the e-health knowledge is the object of attention and is formed based on the attributes of the e-health knowledge. Characteristics of the e-health knowledge such as accuracy, relevance, completeness, reliability helps in the formation of favorable attitude. Technology used in disseminating e-health knowledge also plays an important role in forming the attitude.

Earlier studies have also analyzed few of the information characteristics on the use of health information websites. Dutta-Bergman(2004) studied the impact of completeness and credibility of e-health information and found that completeness increases credibility and its use. O'Reilly (2000) studied how health portals strive to enhance the reliability of the information they provide. Hardey (2001) researched on how quality of information delivered through health portals can be enhanced through interweaving personal experience of users. Beginning with just a static website providing generic information, many e-health portals have advanced to highly advanced sources of e-medicine using tools like personalization and on-line consultation etc.

Attitude towards e-knowledge usage

Perceived beliefs about the usage of e-health knowledge influence the behavioral intention to use the same. Based on the expectancy-value model, Ajzen explains that behavioral beliefs influence the formation of attitude towards usage. Users' beliefs could be stemmed from the expected benefits on the use of such e-health knowledge portals. Users will be more likely to use health information portals when they believe that their use of health information portals will improve their well being. People are still wary of using the net. The lack of interpersonal relationship makes the attitude towards e-knowledge unique.

Subjective Norm

Social norms greatly influence behavioral intention. There are two types of social norms discussed in the literature. Descriptive norms specify generally what most people do in a particular situation. Injunctive norms specify what others want us to do (Reno, Cialdini and Kallgren 1993). Social norms greatly influence behavioral intention and can explain human behavior to a certain extent (Fishbein et al. 1975). There are two types of social norms discussed in the literature. Descriptive norms specify generally what most people do in a particular situation. Injunctive norms specify what others want us to do (Reno et al. 1993). Empirical research claims, our friends, peers greatly influence our behavior (Thompson and Higgins 1991). Interpersonal theory proposed by Triandis (1971) suggests that social factors are one of the primary determinants of behavior. Culture plays a significant part in the adopting internet usage (Loch et al. 2003). We believe that the advent of internet has over the years has been responsible for changes in social norms and that internet usage for medical help can be explained using these social norms. Institutionalization plays a role in forming opinions and influence behavior.

Intention to use e-knowledge

Consumers form their intention to use e-knowledge and this is affected by both the subjective norm and their attitude towards e-knowledge usage. Past research studies have shown that intention to use is a strong predictor of actual usage.

Actual use of e-knowledge

E-knowledge usage can be conceptualized to be at various levels ranging from gaining awareness to self medication. Sometimes, consumers may discuss with their doctors about the information they gleaned from these websites. In other cases, some consumers may attempt to buy medications or practice what has been said in these websites and indulge in self-medication. With on-line purchases ranging from steroids to herbal products, the reasons often provided are low cost, and accessibility to products otherwise not readily available.

Illness characteristics

We hypothesize that the characteristics of illness will have a moderating effect on web usage. The magnitude of the need to access health information depends a lot on nature and intensity of the disease. Typically, users are accessing web portals to get better information about the disease and the available treatment. Intuitively speaking, users will be cautious in taking advice from the web portals, especially when there high risk involved. However, many times, patient has to wait to get the appointment in case of non-emergencies. For these types of cases, web portals which can help diagnose the problem (webmd.com) can be very useful. Additionally, we believe that people in desperate situations have a tendency to depend on the net even if they sub-consciously do not believe in it.

CONCLUSION AND FUTURE RESEARCH DIRECTIONS

Growing use of Internet in the health care arena has opened avenues for fruitful research. There are numerous health information web portals available and their increased usage by consumers has given both problems and opportunities to various stakeholders in the healthcare industry.

Health, due to its unique nature stands out among other phenomena on the net. Factors influencing it are over and beyond the ones influencing the general use of the net. Intuitively speaking, a user looking for medical information will be much more vary of information on the net than when he is using the net for information to repair his car. Although there have been studies on the general usage of the net, not much has been done to explain health related web usage. Our contribution lies in formulating a model which brings out the multifaceted nature of usage.

This paper has developed a model by synthesizing from various sources to explain the e-health knowledge. It will also help Practitioners gain better insights into web usage for medical purposes.

Empirical validation of the model will establish the relationship between the various influencing factors and the final usage. Similar studies on other content based services can help strengthen the underlying theory as well as bring out differences among the various phenomena. Extension of this study with other cultures, age, professional groups will bring out the importance of norms on usage.

Definite potential exists in terms of understanding this unique phenomenon and we intent to empirically evaluate this model by conducting a web based survey in the University environment. We also intend to do a longitudinal study to measure changes in the attitude of users with respect to the increased usage of the internet and also the advancement in e-health technology.

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