



**UNIVERSITI PUTRA MALAYSIA**

***INTEGRATING HEALTH-RELATED FACTORS IN THE  
TECHNOLOGICAL ACCEPTANCE MODEL FOR PREDICTING HEALTH-  
RELATED  
INTERNET USE***

**ASHRAF SADAT AHADZADEH**

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ACCEPTANCE MODEL FOR PREDICTING HEALTH-RELATED  
INTERNET USE**

**By**

**ASHRAF SADAT AHADZADEH**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in  
Fulfillment of the Requirement for the Degree of Doctor of Philosophy**

**November 2014**

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**Dedicated**

**To**

**Those who have enhanced my life in untold ways**



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Abstract of thesis presented to the senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

**INTEGRATING HEALTH-RELATED FACTORS IN  
THE TECHNOLOGICAL ACCEPTANCE MODEL  
FOR PREDICTING HEALTH-RELATED INTERNET USE**

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**November 2014**

**Chairman: Professor. Md Salleh Hj Hassan, PhD**

**Faculty: Modern Languages and Communication**

Today, people use the Internet to satisfy health-related information and communication needs. Women are dominant Internet users in terms of health purposes. In Malaysia, Internet use for health management has become increasingly significant due to the increase in the incidence of chronic diseases, in particular among urban women, and their desire to stay healthy. Past studies adopted technology acceptance model (TAM) and health belief model (HBM) independently to explain Internet use for health-related purposes. TAM explains technology-related factors for Internet use whereas HBM purely explains health-related Internet use from a health perspective. While both TAM and HBM have their own merits, independently they lack the ability to explain the cognition and the related mechanisms in which individuals use Internet for health purpose.

The main objective of this study is to develop an integrated model of health-related Internet use based on the health belief model (HBM) and the technology acceptance model (TAM). This study specifically aims to examine the influence of perceived health risk and health consciousness on health-related Internet use based on the HBM. Drawing upon the TAM it also tests the mediating effects of perceived usefulness of Internet for health information and attitude towards Internet for health purposes on the relationship between health-related factors, namely perceive health risk and health consciousness, and health-related Internet use.

Data obtained for the current study were collected using proportionate sampling and the sample consisted of non-academic female staffs working at the Universiti Putra Malaysia (UPM). A total of 293 respondents were selected for this study and Partial

Least Squares-Structural Equation Modeling was used to test the research hypotheses developed for this study.

The results of this study revealed that perceived health risk and health consciousness have a positive influence on health-related Internet use. Additionally, perceived usefulness of Internet was influenced by perceived health risk and health consciousness. Perceived ease of Internet use and perceived usefulness also showed the positive impact on attitude towards the Internet use for health information which in turn had a positive effect on health-related Internet use. Moreover, perceived usefulness of Internet and attitude towards the Internet use for health-related purposes partially mediated the influence of health consciousness on health-related Internet use while the effect of perceived health risk on health-related Internet use was fully mediated by perceived usefulness of Internet and attitude. These results suggested the central role of perceived usefulness of and attitude towards Internet for health purpose for women who were health conscious and who perceived their health to be at risk. The integrated model proposed and tested in this study shows that HBM when combined with TAM is able to predict the Internet use for health purpose. For women who subjectively evaluate their health as vulnerable to diseases and are concerned about their health, cognition beliefs in and positive affective feelings about Internet come into play in the use of Internet for health-related purposes. Furthermore, engaging in health-related Internet use is a proactive behavior rather than a reactive behavior, suggesting the significant mediating role of the TAM dimensions in using the Internet for health management.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**MENGINTEGRASIKAN FAKTOR YANG BERKAITAN KESIHATAN DI  
DALAM MODEL PENERIMAAN TEKNOLOGI UNTUK MERAMAL  
PENGUNAAN INTERNET BERKAITAN KESIHATAN**

Oleh

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Hari ini, manusia menggunakan Internet untuk memuaskan keperluan berkomunikasi dan mendapatkan maklumat yang berkaitan dengan kesihatan. Golongan wanita merupakan pengguna Internet yang dominan bagi tujuan kesihatan. Di Malaysia, penggunaan Internet untuk tujuan pengurusan kesihatan telah menjadi sangat penting dikalangan wanita yang tinggal dibandar-bandar, ini disebabkan kerana peningkatan kes-kes penyakit kronik serta keinginan mereka untuk kekal sihat. Kajian-kajian lepas telah menggunakan model penerimaan teknologi (TAM) dan model kepercayaan kesihatan (HBM) secara berasingan bagi menjelaskan penggunaan Internet untuk tujuan yang berkaitan dengan kesihatan. TAM menerangkan faktor-faktor berkaitan teknologi untuk kegunaan Internet manakala HBM semata-mata menjelaskan penggunaan Internet yang berkaitan dengan kesihatan dari perspektif kesihatan. Walaupun kedua-dua TAM dan HBM mempunyai kelebihan yang tersendiri, namun secara berasingan model-model ini tidak mempunyai keupayaan untuk menjelaskan kognisi dan mekanisme yang membolehkan individu menggunakan Internet untuk tujuan kesihatan.

Objektif utama kajian ini adalah untuk membangunkan satu model bersepadu mengenai penggunaan Internet yang berkaitan dengan kesihatan berdasarkan model kepercayaan kesihatan (HBM) dan model penerimaan teknologi (TAM). Secara khususnya, kajian ini bertujuan untuk mengkaji pengaruh tanggapan risiko kesihatan dan kesedaran tentang kesihatan ke atas penggunaan internet yang berkaitan dengan kesihatan berdasarkan HBM.

Data yang diperolehi untuk kajian semasa telah dikumpulkan dengan menggunakan persampelan perkadaran. Sampel terdiri daripada kakitangan wanita bukan akademik yang bekerja di Universiti Putra Malaysia (UPM). Seramai 293 orang responden telah

dipilih untuk kajian ini dan Partial Least Squares-Structural Equation Modeling telah digunakan untuk menguji hipotesis-hipotesis penyelidikan yang dibina.

Keputusan daripada kajian ini mendedahkan bahawa tanggapan ke atas risiko kesihatan dan kesedaran kesihatan mempunyai pengaruh yang positif ke atas penggunaan Internet berkaitan kesihatan. Tambahan pula, tanggapan ke atas kegunaan Internet telah dipengaruhi oleh tanggapan ke atas risiko kesihatan dan kesedaran kesihatan. Tanggapan bahawa Internet adalah memudahkan dan berguna telah menunjukkan kesan yang positif ke atas sikap penggunaan Internet bagi tujuan mendapatkan maklumat kesihatan. Faktor-faktor ini juga telah memberi kesan yang positif ke atas penggunaan Internet yang berkaitan dengan kesihatan. Selain itu, tanggapan kegunaan Internet dan sikap terhadap penggunaan Internet untuk tujuan kesihatan merupakan pembolehubah pengantara separa yang mempengaruhi kesedaran kesihatan terhadap penggunaan Internet yang berkaitan dengan kesihatan, manakala kesan risiko kesihatan dilihat pada penggunaan Internet yang berkaitan dengan kesihatan merupakan pembolehubah pengantara penuh diantara tanggapan penggunaan Internet dan sikap. Keputusan ini telah mencadangkan bahawa tugas utama tanggapan kegunaan dan sikap ke atas Internet untuk tujuan kesihatan bagi wanita yang sedar tentang kepentingan kesihatan dan menganggap kesihatan mereka berada dalam keadaan yang berisiko.

Model bersepadu yang telah dicadangkan dan diuji dalam kajian ini menunjukkan bahawa HBM apabila digabungkan dengan TAM dapat meramalkan penggunaan Internet untuk tujuan kesihatan. Bagi wanita yang menilai kesihatan mereka sebagai yang mudah terdedah kepada pelbagai penyakit dan mengambil berat mengenai kesihatan mereka, kepercayaan kognitif dan perasaan positif mengenai Internet mempengaruhi cara penggunaan Internet untuk tujuan kesihatan. Tambahan pula, melibatkan diri dalam penggunaan Internet yang berkaitan dengan kesihatan adalah tingkah laku proaktif dan bukannya tingkah laku reaktif, menunjukkan peranan perantara yang besar daripada dimensi TAM dalam menggunakan Internet untuk pengurusan kesihatan. Tambahan pula, penglibatan di dalam penggunaan Internet yang berkaitan dengan kesihatan merupakan satu tingkahlaku yang proaktif dan bukannya tingkahlaku yang reaktif. Kajian ini turut mencadangkan peranan utama dimensi TAM sebagai pembolehubah perantara bagi tujuan menggunakan Internet untuk pengurusan kesihatan.



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I certify that a Thesis Examination Committee has met on **Date** to conduct the final examination of Ashraf Sadat Ahadzadeh on his thesis entitled “**Integrating health-related factors in the technological acceptance model for predicting health-related Internet use**” in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [ P.U. (A)106] 15 March 1998. The committee recommends that the students be awarded the Doctor of Philosophy.

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## LIST OF ABBREVIATIONS

AIU	Attitude towards Internet Usage
AVE	Average Variance Extracted
BCS	Breast Cancer Screening
BSE	Breast Self-examination
CBE	Clinical Breast Examination
CVD	Cardio Vascular Diseases
HC	Health Consciousness
HEI	Health Eating Index
HRIU	Health-related Internet Use
IUC	Internet Use for Communication
IUHIS	Internet Use for Health Information Seeking
MCMC	Malaysian Communications and Multimedia Commission
MFP	Malaysian Food Pyramid
MOH	Ministry of Health
PEIU	Perceived Ease of Internet Use
PHR	Perceived Health Risk
PUI	Perceived Usefulness of Internet
PLS	Partial Least Square
PSOCD	Perceived Severity of Chronic Diseases
PSTCD	Perceived Susceptibility to Chronic Diseases
SEM	Structural Equation Modeling
WHO	World Health Organization

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of Study

Health behavior refers to any activity undertaken by an individual, for the purpose of promoting, protecting or maintaining health (World Health Organization, 1998). Accordingly, health-related Internet usage can also be regarded as a health behavior, because this behavior helps individuals to find helpful information to maintain, promote, or manage their health issues (Atkinson, Saperstein, & Pleis, 2009) and communicate with others for health-related purposes (Hale, Cotten, Drentea, & Goldner, 2010).

It is believed that Internet use for health-related issues, like any other health behaviors, can be either a reactive or proactive process (Pandey, Hart, & Tiwary, 2003). One of the first models designed to understand health behavior as a reactive process is the Health Belief Model (HBM) (Rosenstock, 1966). Initially, the HBM was developed to predict individual's behavioral reaction with acute or chronic diseases toward the treatment they receive (Champion & Skinner, 2008), but later the model was employed to predict more general health behaviors (Ross, Ross, Rahman, & Cataldo, 2010; Semenza, Ploubidis, & George, 2011).

The basic assumption of the HBM is that a person in the absence of any symptoms will not take health or preventive activity unless that an individual has psychological readiness (for example he/she feels vulnerable to a disease) (Champion & Skinner, 2008). The HBM postulates that perceived health risk predict “why people will take action to prevent, screen for, or control illness conditions.” (Champion & Skinner, 2008, p. 46).

The published literature on health behavior suggests that an individual with higher perceived health risk has greater motivation to change or adopt health behavior, including adopting a preventive health behavior such as information seeking. For example, Kown, Kahlor, and Kim (2011) found that perceived health risk was positively associated with prevention information seeking. Similarly, another study showed that as perceived risk for cancer increased, patients were more likely to engage in Web information search (Dillard, Couper, & Zikmund-Fisher, 2010). Yun and Park (2010) also found that perceived health threat led to disease information seeking behavior on the Internet. In addition to health and medical information seeking, usage of the Internet among online health communities was also influenced by perceived susceptibility to cancer (Dutta & Feng, 2007).

Health-related Internet use considered to be a proactive process, on the other hand, can be predicted by health consciousness which was later embedded to the HBM (Jayanti & Burns, 1998). Health consciousness is “the degree to which health concerns are integrated into a person's daily activities” (Jayanti & Burns, 1998, p. 10). Health conscious people “are aware of and concerned about their wellness and are motivated to

improve and/ or maintain their health, and quality of life by engaging in healthy behaviors and being self-conscious regarding health.” (Chen, 2011, p. 255).

Health consciousness is a predictor of using communication channels for health as well as seeking and learning health information (Dutta-Bergman, 2004a, 2004b; Dutta-Bergman, 2006). Health consciousness increases the amount of health-related information obtained from media sources such as television, radio programs, books, newspaper, magazines, advertising and pamphlets about health (Moorman & Matulich, 1993) as well as speaking about health (Gould, 1990). Health conscious individuals tend to search health information and healthy lifestyle information through the Internet and prefer publications (e.g., newspapers and magazines), and interpersonal networks (e.g., family and friends) (Dutta-Bergman, 2004b). The widespread adoption of the Internet by health conscious people has changed it as a primary health information source, as compared to mass media (e.g., television and radio) to learn about health-related issues (Dutta-Bergman, 2004b).

While HBM perspective explains health-related Internet usage via the subjective assessment of individual’s vulnerability to health risks and one’s consciousness towards health, the Technology Acceptance Model (TAM) (Davis, 1989) views health-related Internet use behavior from the technology perspective, i.e., the usefulness and ease of use of the Internet as well as one’s attitude towards Internet usage.

The TAM has been developed to understand the use of technology (Davis, 1989) and it has been widely used for studying technological behaviors such as computer and Internet use (Davis, Bagozzi, & Warshaw, 1989; Guritno & Siringoringo, 2013; Holden & Rada, 2011). As suggested by TAM, there are three major components predicting one’s behavioral intention to utilize a technology, including perceived usefulness (PU), perceived ease of use (PEOU), and attitude toward using technology. Perceived usefulness is defined “as the belief about using the technology that would bring benefits to the user, whereas perceived ease of use refers to the belief about using the technology that involves little effort.” (Wong, Yeung, Ho, Tse, & Lam, 2012, p. 3). Perceived usefulness and perceived ease of use both affect individuals’ attitudes toward using the technology which in turn influences behavioral intention to adopt the technology (Davis, 1989). Attitude involves an individual’s belief about the consequences of performing a behavior (such as technology use), whether it is good or bad, and the general evaluation influences an individual’s inclination to use or not to use a particular technology (Ajzen & Fishbein, 1980). In fact, attitude guides individual’s behaviors through shaping perception (Ajzen & Fishbein, 1980). The actual system use is then hypothesized to be influenced by the behavioral intention to technology usage (Davis, 1989).

Using TAM framework, Lim *et al.* (2011) studied Singaporean women’s acceptance of using mobile phones to seek health information and found two core TAM variables, perceived usefulness and perceived ease of use, were positively correlated with behavioral intention. Similarly, Wong and his associates (2012) investigated perceived ease of use, perceived usefulness, and attitudes towards Internet use to predict behavioral intention to search for health information. Results showed that participants with higher perceived usefulness, perceived ease of use, and positive attitudes towards

Internet use reported a higher intention to use the Internet to search for health information. Furthermore, all studies that applied TAM in health care domain included behavioral intention to use health information technology (Kim & Park, 2012; Lim, *et al.*, 2011; Wong, *et al.*, 2012; Yun & Park, 2010).

## 1.2 Problem Statement

Today millions of people throughout the world are using the Internet and much of this activity has been focused on health (Fox, 2006; Fox & Duggan, 2013). Using Internet to search for information on health and diseases related information (Atkinson, *et al.*, 2009) is not only common but also the Internet has been increasingly used to communicate and share information on health and for health-related purposes (Tardy & Hale, 1998). Such importance placed on the Internet as a health seeking platform helps people maintain, promote and manage their health (Kim & Park, 2012; Wong, *et al.*, 2012).

Past research show that women are more likely to use Internet for health-related purposes as compared to men (Fox & Duggan, 2013; Lemire, Pare, Sicotte, & Harvey, 2008; Percheski & Hargittai, 2011). In Malaysia, the use of Internet to manage health and to learn more about diseases has become increasingly important due to the increase in the prevalence of chronic diseases (Hashim, 2003), in particular among urban women (Ministry of Health, 2011). Although the number of male Internet users is higher than female users, women are dominant Internet users in terms of health information seeking (Komathi & Maimunah, 2009).

While abundance of researches can be found on Internet health care information seeking behavior, a major focus of these studies tended to concentrate on understanding the behavioral intention to use Internet for health information based on the technology acceptance model (TAM) (Lim, *et al.*, 2011; Wong, *et al.*, 2012). Other studies that contribute to the extant literature include those that are based on health belief model (HBM) (Dillard, *et al.*, 2010; Kwon, *et al.*, 2011).

Although several previous studies on Internet health seeking behavior adopted TAM or HBM, the use of these theories independently has not been able to fully explain Internet use for health-related purposes. TAM has been used to predict an individuals' intention to use technology, however, it is an inadequate model for explaining health-related Internet use because it heavily depends on two factors: perceived usefulness and perceived ease of use of technology (Davis, 1989). HBM attempts to describe the factors that influence health-related Internet use, from purely health perspective. In other words, HBM does not explain the mechanisms in which women engage in Internet use for health-related issues due to their health consciousness and their perception towards health risk, or the process that lead to health-related Internet use. Although TAM has been widely used in explaining behavior that relates to technology, its effect on health-related Internet use could only be fully understood by incorporating HBM that explains individuals' belief about health into the model. In this regard, Davis *et al.* (1989) also suggest that the TAM framework is open to include additional predictors as external variables to explain perceived usefulness and perceived ease of use for increasing



predictive validity of the model and for the sake of its parsimony. In short, there is a need to examine Internet use for health-related purposes from HBM perspective and an integrated perspective that combines cognitive beliefs in (i.e. perceived usefulness of Internet and perceived ease of use) and attitude towards Internet use for health-related purposes as well as the subjective evaluation of the psychological states of individuals with regards to their perception on their health status.

Based on the HBM, perceived health risk and health consciousness influence Internet use for health purposes while in an integrated model of health-related Internet use drawing upon the health belief model (HBM) and the technology acceptance model (TAM), influence of perceived health risk and health consciousness on Internet use for health purposes is mediated by perceived usefulness of Internet and attitude towards Internet use for health sequentially.

Another shortcoming is that all studies that used TAM to explain health information technology use focused on behavioral intention to use technology, not actual behavior of health information technology use (Kim & Park, 2012; Wong, *et al.*, 2012; Yun & Park, 2010). Intention to use information technology for health information does not show the actual Internet usage. Even positive indication of intention to adopt health information technology does not reveal the clear picture for technology use. Furthermore, intention to use “may be the only proxy of technology acceptance in situations where technology development is still in its early stages, it should not be treated as confirmation of technology acceptance.” (Lim, *et al.*, 2011, p. 196). Horton, Buck, Waterson, and Clegg (2001) also argued that intention to use should be omitted from the TAM in order to understand the direct influence of other constructs (e.g. attitude) on the technology use. Further TAM study to measure Internet use for health-related issues is, therefore, needed to exclude intention to use and consequently include actual behavior regarding Internet use for health-related purposes.

### **1.3 Research Questions**

- 1) Is health-related Internet use influenced by perceived health risk towards chronic diseases and health consciousness?
- 2) Is the influence of perceived health risk and health consciousness on health-related Internet use mediated by perceived usefulness of Internet for health management and attitude towards Internet use for health-related purposes sequentially?

## **1.4 Research Objectives**

### **1.4.1 General Objective**

The general objective of this study is to investigate health-related factors that influence Internet usage for health-related purposes.

### **1.4.2 Specific Objectives**

The specific objectives of this study are:

- 1) To test the influence of perceived health risk to chronic diseases and health consciousness on health-related Internet use.
- 2) To test whether perceived usefulness of Internet for health management and attitude towards Internet use for health purposes sequentially mediate the influence of perceived health risk to chronic diseases and health consciousness on health-related Internet use.

## **1.5 Significance of the Study**

Despite several local studies conducted on Internet usage among Malaysian women, rigorous research focusing on Internet use for health-related issues by Malaysian women and investigating the influence of health-related factors on Internet usage for health issues has not been undertaken by the time of this study. Therefore, the current research attempts to fill the gap in the body of literature on Malaysian women's health-related Internet use.

The contribution of this study is to develop a model of health-related Internet use that combines cognitive beliefs about and attitude towards Internet use for health-related purposes with subjective assessment of psychological states of individuals with regard to their perceptions of vulnerability to diseases and concerns about health status to fully understand the mechanism that leads to health-related Internet use.

The original Technology Acceptance Model (TAM) is limited to only three variables in determining the technology usage for a variety of technologies adopted for different purposes. To overcome this parsimony, the present study would incorporate additional variables suitable for the context being investigated and for the users being used, thus leading to greater predictive power of the model. Therefore, this study can theoretically help the dynamism and evolution of the TAM framework.

Using Structural Equation Modeling (SEM) method, this study would methodologically help to overcome limitations of other methods of analysis most commonly used in social sciences studies in terms of two aspects: 1) data used for the study include a non-negligible amount of measurement error. SEM is able to take measurement error into account by explicitly including measurement error variables that are related to the

measurement error portions of observed variables. Therefore, conclusions about relationships between constructs are not biased by measurement error, and are equivalent to relationship between variables of perfect reliability, 2) SEM allows to make use of several indicator variables per construct simultaneously, which leads to more valid conclusions on the construct level (Hair, Black, Babin, & Anderson, 2010). Using other methods of analysis would often result in less clear conclusions, and/or would require several separate analyses.

Hopefully, the knowledge gained from this research study would be helpful for health policy makers to identify determinants of and more importantly the mechanism or reasoning process that leads to health-related Internet use. This would enable them to develop strategies for increasing Internet usage for health-related purposes as well as to plan Internet-based communications regarding health issues which both have the potential to enhance the self-health management capabilities of women, increase individual participation in disease prevention, encourage health behavior change, and influence health outcomes.

The findings of this study can also be beneficial for health care professionals. In order to introduce the Internet as a desirable health information search outlet, they need to identify the factors that influence Internet use to access health information. As such, online health information providers might acquire advice for developing marketing strategies to enhance women's willingness level and acceptance rate as well as the degree of compliance with available online information products.

### **1.6 Scope and Limitations of the Study**

The study focuses on incorporating perceived health risk and health consciousness from health belief model (HBM) in the technology acceptance model (TAM). In the proposed integrated model, perceived health risk and health consciousness influence perceived usefulness of Internet which in turn influences attitude towards Internet use for health-related purposes and which in turn affects health-related Internet use among non-academic female staffs working at the Universiti Putra Malaysia (UPM).

As far as research is concerned, there would always be certain limitations. The present study has also faced some challenges and limitations. The first challenge is the difficulty of accessing the randomly selected non-academic female staff. The second limitation is that as a survey research, the data collected are completely self-reported. As with any survey attempting to gather data, the participants may have incorrectly reported information about themselves. Furthermore, the study is designed to investigate a specific group of people. Thus, generalization should be made only to the group of similar characteristics.

## **1.7 Definition of Terms**

### **Perceived Usefulness of Internet:**

It refers to "the degree to which a person believes that using a particular system would enhance his or her job performance." (Davis, 1989, p. 320). In the context of this study, particular system refers to the Internet; whereas task refers to the health management. Therefore, for this study perceived usefulness is operationally defined as the degree to which female Internet users believe that using the Internet would improve their performance in managing their health.

### **Perceived Ease of Internet Use:**

It refers to "the degree to which a person believes that using a particular system would be free of effort." (Davis, 1989, p. 320). In the context of this study, particular system refers to the Internet. For this study, perceived ease of use is defined as the degree to which female Internet users believe that Internet would take less effort to search and use health information.

### **Attitude towards Internet Use for Health Purposes:**

It refers to the individual's evaluation of the desirability of employing a particular system (Ajzen & Fishbein, 1980). For this study, attitude towards Internet use for health-related issues is defined as the degree to which female respondents evaluate Internet usage for health-related purposes (such as health information seeking and health management) as a good, wise and pleasant idea.

### **Perceived Health Risk:**

Perceived health risk refers to the extent to which individuals believe that they are subject to a health threat (Gerend, Aiken, West, & Erchull, 2004). It includes two components 1) perceived susceptibility to 2) perceived severity of diseases.

### **Perceived Susceptibility to Diseases:**

It refers to "beliefs about the likelihood of getting a disease or condition." (Champion & Skinner, 2008, p. 47). For this study, perceived susceptibility to diseases is defined as females' beliefs about the likelihood of getting chronic diseases like hypertension, diabetes, obesity, cardiovascular diseases, etc.

### **Perceived Severity of Diseases:**

It refers to "feelings about the seriousness of contracting an illness or of leaving it untreated include evaluations of both medical and clinical consequences (for example, death, disability, and pain) and possible social consequences (such as effect of the conditions on work, family life, and social relations)" (Champion & Skinner, 2008, p. 47). In the context of this study, diseases refer to chronic diseases like hypertension, diabetes, obesity, cardiovascular disease, etc.

**Health Consciousness:**

Health consciousness is defined as “an indicator of the consumer’s intrinsic motivation to maintain good health.” (Dutta-Bergman, 2004a, p. 398). Health conscious people are “aware of and concerned about their wellness and are motivated to improve and/or maintain their health, and quality of life by engaging in healthy behaviors and being self-conscious regarding health” (Chen, 2011, p. 25).

**Health-Related Internet Use:**

It is defined as activities online health seekers do on the Internet relating to their health such as searching for health and medical information online, searching for health and medical information before/after an appointment with the doctor, searching information to make decision to consult with a health professional, searching for health information for oneself, reading about illness, therapy, treatment issues in general, interacting with health professionals using email, and taking apart in forums or using an online support group (Hale, *et al.*, 2010; Kim & Park, 2012; Yoo & Robbins, 2008).

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