A PILOT STUDY OF THE RELATIONSHIP BETWEEN HEALTH ANXIETY AND INTERNET HEALTH INFORMATION SEARCHING

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Abstract- Health information on the internet is available for persons to increase their health knowledge and take more responsibility for their health. This investigation was designed to examine how persons varying in severity of health anxiety would search health information on the internet. A cross-sectional research design was employed to articulate the relationship between health anxiety and internet health information searching. The participants are 275 males and 234 females aged 15-67 years old persons living in New Taipei City. The results showed that health anxiety is a good predictor for health information searching and health information searching is motivated by health knowledge insufficiency. And there is difference between frequency and websites' number of online health information searching. In conclusion, online health information searching is a purposive behavior, and can be affected by health anxiety.

Keywords- Health anxiety, Internet health information searching.

I. INTRODUCTION

The emergence of the Internet made health information accessible to the general public. Health information on the Internet is available for persons to increase their health knowledge and take more responsibility for their health. However, the cognitive theory states that the medical information is to be perceived as more dangerous than they really are for persons with health anxiety.

II. LITERATURE REVIEW

A. Health Anxiety

Health anxiety is usually thought of as a continuum with 'hypochondriasis' at the extreme [1]–[2]. It is characterized by attentional biases towards illness-related information [3], and cognitive biases leading to the misinterpretation of information as personally threatening and catastrophic. Anxiety focused upon health is an almost universal phenomenon and persistent anxiety about health is common both in the community and in the clinic [4]. The development and maintenance of health anxiety has been interpreted by cognitive-behavioral theory [2] [5]. The theory predicts that health anxiety is associated with an attentional bias to notice illness related information, as well as a cognitive bias to misinterpret information in a catastrophic and personally threatening manner.

People who are anxious about their health are more likely to misinterpret health information as personally threatening. Individual differences in the way people process health-related information can influence its emotional impact. People with a monitoring attentional style are thought more likely to amplify health threats, to believe they are at risk of illness and to respond with greater levels of distress [6]. Muse et al. [7] revealed significant relationships between health anxiety and the frequency, duration and distress and anxiety associated with searching for health information online and suggested that searching for health information online may exacerbate health anxiety.

B. Online Health Information Searching

Online health information searching is related to the users' individual characteristics and situation factors [8]. Individual characteristics include socioeconomic and psychological factors. A married female with higher income is more likely to be engaged in the search of health information [9]. Those of younger age, higher education, employed, and high income were observed more frequently searching the Internet for health information [10]. An individual with a higher health value and an internal health locus of control tends to search more for health information [11]. McKinley and Ruppel [12] found that self-efficacy and perceived threat play a small, yet significant role in explaining online mental health information seeking outcomes. For older adults, Chang and Im [13] indicated two variables ─ prior experience and behavioral intention to use ─ had positive direct effects on Internet health information seeking behaviors. A review by Anker et al. [14] found the predisposing characteristics of health information seekers included gender, education, income, age, health literacy, and that health information seeking is associated with discussion of search results with physicians, patient satisfaction, knowledge of treatment options, and treatment decisions for the self or others. In sum, the influences on using the internet to search for health information were sex (female), employment (not fulltime), engaging in more other internet activities, more specific health reasons

(diagnosed with new health problem, ongoing medical condition, prescribed new medication or treatment), and helping another deal with health issues [15].

For situation factors, Xiao et al. [16] found that perceived quality of communication with doctors and perceived health status could affect Internet health information searching behavior. Some of the health information seekers participating in Rice's study [15] said that the information obtained from the Internet led them to ask a doctor new questions or to get a second opinion from another doctor or affected their decision about whether to see a doctor or not. AlGhamdi and Moussa [10] found the reasons of Internet health information searching behavior including not getting enough information from their doctor, not trusting the information given by their doctor.

C. Theory

The cognitive-behavioral theory (CBT) has been articulated to explain the development and maintenance of health anxiety [2] [5]. In CBT models, cognitive processes, in the form of meaning, judgments, appraisals, and assumptions associated with specific life events, are the primary determinants of one's feelings and actions in response to life events and thus either facilitate or hinder the process of adaptation. That is, in addition to environmental influences, a person's thoughts and feelings are believed to make a unique contribution to behavioral health. The CBT predicts that health anxiety is associated with an attentional bias to notice illness related information, as well as a cognitive bias to misinterpret information in a catastrophic and personally threatening manner.

Overall, this investigation was designed to examine how persons varying in severity of health anxiety would search health information on the internet.

III. METHOD

This study employed a cross-sectional research design. The participants are persons living in New Taipei City. Health Anxiety Questionnaire modified by Chen [17] was applied to measure health anxiety. This instrument contains 19 questions, and was adopted from 21 questions version developed by Lucock and Morler [18]. The Cronbach's alpha of the instrument is 0.92 in this study. The dependent variables are frequency of Internet health information searching and the websites' number used for health information searching. The respondents were asked how often they have searched health information and how many web sites they have searched for health information. The independent variables include gender, age, education, marriage, employment, and some situation variables. The situation variables include health status and the purpose of seeking health information. Whether the respondents or their family have suffered from chronic disease was measured as the health status. The purposes of seeking health information include increasing health knowledge, insufficiency of information provided by doctors.

IV. RESULT

The participants are 275 males and 234 females aged 15-67 years old (M=26.39, SD=9.26). Most of them are not married and graduated from university. About half of the participants are unemployment. The purpose of seeking health information on Internet is not the insufficiency of information provided by doctors for almost all the participants. Most of them search health information for the purpose of increasing health knowledge. (Table 1)

Table 1 Description of participants

Variables	N	%
Gender		
Male	275	54.0
Female	234	46.0
Education		
University	418	82.1
High school	91	17.9
Marriage		
Yes	103	20.2
No	406	79.8
Employment		
Yes	231	45.4
No	278	54.6
Insufficiency of health information from doctor		
Yes	48	9.4
No	461	90.6
Improving health knowledge		
Yes	239	47.0
No	270	53.0
	Mean	SD
Age(15-67)	26.39	9.26
Health anxiety (0-95)	28.61	16.10
Chronic disease of respondents(0-3)	0.19	0.51
Chronic disease of family(0-3)	1.10	1.11
Frequency of searching(0-3)	1.52	0.98
No. of websites(0-3)	0.82	0.79

As table 2, the regression model showed that gender, age, and education are correlated with frequency of internet health information searching, but not marriage and employment. Females have higher probability than males to search health information on the Internet. For age, the younger persons have higher probability of health information searching behavior. And the persons with higher education search health information online more frequently than with lower education. Health anxiety is a good predictor, and those with purpose of improving health knowledge are more likely to search health information. And those whose family has chronic disease are more likely to be Internet health information seekers.

Table 2 Factors for the frequency of Internet health information searching

Variables	B	t	p
Gender (M/F)	-0.259	-3.244	0.001
Age	-0.012	-2.055	0.040
Education(University/high school)	0.329	2.939	0.003
Marriage(Y/N)	-0.112	-0.866	0.387
Employment(Y/N)	0.108	1.252	0.211
Health anxiety	0.010	3.966	<0.001
Insufficiency of health information from doctor (Y/N)	0.000	-0.003	0.997
Increasing health knowledge(Y/N)	0.528	6.723	<0.001
Chronic disease of respondents	0.033	0.400	0.690
Chronic disease of family	0.097	2.654	0.008
Constant	0.712	2.427	0.016
R		0.460	
R square		0.212	

Table 3 Factors for the websites' number of internet health information searching

Variables	B	t	p
Gender (M/F)	-0.035	-0.543	0.588
Age	-0.007	-1.503	0.134
Education(University/high school)	0.239	2.620	0.009
Marriage(Y/N)	0.011	0.105	0.917
Employment(Y/N)	0.217	3.077	0.002
Health anxiety	0.006	2.765	0.006
Insufficiency of health information from doctor (Y/N)	-0.089	-0.809	0.419
Increasing health knowledge(Y/N)	0.440	6.863	<0.001
Chronic disease of respondents	0.287	4.268	<0.001
Chronic disease of family	0.061	2.044	0.041
Constant	-0.002	-0.008	0.994
R		0.436	
R square		0.190	

The factors affecting the number of webpages are shown as table 3. The significant factors are education, employment, health anxiety, improving health knowledge, and the chronic disease of respondents or their family. The persons with higher education or being employed have browsed more webpages. Health anxiety is also a key factor. The persons with higher health anxiety have browsed more webpages. If they want to improve health knowledge, they will browse more webpages. And chronic disease is important for both participants and family to browse more webpages.

Comparing these two regression models, education, health anxiety, improving health knowledge, and chronic disease of family are predictors for both frequency of online health information searching and webpages' number.

V. DISCUSSION AND CONCLUSION

The internet has become a particularly attractive venue for gaining knowledge on various health concerns. It is broadly recognized as an important mechanism for transforming both health care and public health [19]–[20]. Obviously, the internet offers considerable promise as a health communication and education tool [21]–[22]. However, the impact of health anxiety on internet health information searching behavior cannot be ignored.

A. Health Anxiety is a Good Predictor for Health Information Searching

The result is consistent with previous studies. There are significant relationships between health anxiety and the frequency, websites' number of health information searching. People who are more anxious about their health are more likely to seeking health information frequently and browsing more websites. Health information could be used by people with an illness in order to understand their diagnosis and treatment options as well as by healthy people for risk evaluation and disease prevention [23]. In this study, most of the respondents are healthy persons. And the purpose of browsing websites' health information is to increase their health knowledge. It is supposed that the online health information browsing behavior is helpful for disease prevention and health promotion.

B. Health information searching is motivated by health knowledge insufficiency

For almost half of the participants, the purpose of health information searching is increasing health knowledge but not insufficiency of health information from doctor. It is not in line with other studies. AlGhamdi and Moussa [10] indicated that not getting enough information from their doctors or not trusting the information given by their doctor would motivate health information seeking behavior. And Rice's study [15] found that the information obtained from the Internet led them to ask a doctor new questions.

There are a number of points worth noting. The participants are young and healthy Taiwanese living in New Taipei City. For health status, most of them are healthy without any chronic disease and not visiting doctors frequently. The context of interaction with doctor does not exist in their daily living. They may be curious about health information and want to increase their health information, but not for communication with doctors. This is the first point.

The second point is relating to Chinese culture. Historically, Taiwanese are strongly influenced by Confucianism. The Confucian thought focuses on li (禮) to properly interact with others in accordance with a system of ritual norms and propriety. During the ancient time, the doctors are wise and compassionate. They heal the poor without asking any return. All the doctors are respectful and the patients should be compliance with doctors and not ask any questions. In the modern era, the health system is changing dramatically. The doctors are employed by the health organization. They may be competence, reliability and dependability, but not compassionate. However, the Confucius tradition still has impact on patients not arguing with doctors. That is why getting insufficient health information from doctor does not exert

influence on the health information seeking behavior.

C. The difference between frequency and websites' number of internet health information searching

Gender and age are important factors for the frequency, but not the webpages' number of internet health information searching. Females search health information more frequently than males. The younger has higher frequency of searching online health information.

Information seeking is a purposive acquisition of information from selected information carriers. The frequency of searching represents the times of browsing internet health information. It is supposed that the internet browsing behavior is triggered by having suffered from problems. When there is a specific health reason, individual will go to seeking information. Females are more concern about health problems, and have higher frequency to browsing health information.

Both chronic diseases of the respondent and of their family are related to the number of websites browsing, while only chronic diseases of their family are related to the frequency of online health information searching. It is supposed that the websites browsing is for a specific purpose. When an individual faced some health related problem, he would google to search for related websites. That's why both the respondents' and their family's chronic disease are related to the number of websites browsing. In conclusion, there are many advantages of using online health information. For the individuals, the advantages include privacy protection, lack of embarrassment, efficient and effective retrieval of information, and the ability to tailor information to meet one's needs [24], especially for those having chronic diseases. However, we should not ignore the problem of health anxiety triggered by health information.

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