Predicting Adult Children’s Decisions to Use Online Elderly Health Information for their Aged Parents

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Abstract

The increasing number of older people and the dissemination of health information via the Internet have emerged and both are challenges to Chinese societies. Available online health information with limited control over information quality highlights the necessity of exploring decision making processes in accessing and using online information, specifically in relation to elderly who almost have no online presence and depend on their adult children’s decisions. The objective of this study was to understand the processes explaining adult children’s decisions to use online health information for their aged parents’ health care by extending the Theory of Planned Behavior (TPB) with risk perception. Hierarchical multiple regression showed that attitude and perceived behavioral control were the predictors of intention to use elderly health information for treatment, whereas, perceived risk was not predictor of intention to use elderly health information for increased understanding. For adults’ use of online elderly health information, for both behaviors, intention was the significant predictor of behavior. The results also provide further support for the utility of the TPB with risk perception in predicting decision making to use online health information. Since online health information search are growing; there is an urgent need to design the sustainable health information services for elderly people and improve the access to relevant health information.

1. Introduction

In recent decades, many parts of the world, such as the UK, and USA, have witnessed a dramatic increase in the aging population [1]. China is no exception to this global population transformation. By the end of 2012, China's elderly population reached 194 million, an increase of 8.91 million over the previous year, which constituted 14.3% of the Chinese population and 24.9% of global elderly population. At the same time, the number of older people with chronic illness continued to increase to 97 million in 2012, which leads to a big challenge to health workers and planners.

With respect to the referencing groups for medical information, the older people mainly depend on friends, relatives, and their children to achieve the healthy ageing [2]. China Aging Development Report (2013) indicated that elderly dependency ratio raised from 20.66% in 2012 to 21.58% in 2013, pushing the total social dependency ratio increased from 44.62% in 2012 to 45.94% in 2013, which imposed more stress on Chinese adult children who must support their elderly parents [3]. In China, the Confucian concepts of loyalty, filial piety, benevolence, and righteousness, which demand that children be devoted to their parents and require that parents be considerate of their children, are one of the most salient and commonly shared cultural values [4]. This cultural value as well as traditional, extended family structure in Chinese society has made the family the very core of an individual’s life, especially for the elderly [5]. Accordingly, the Chinese have developed a set of behavioral rules for family life: parents must take financial responsibility for children; adult children must provide care and respect for the elderly. According to the statistics of a project called Chinese General Social Survey (CGSS), about 49.9% aged parents are willing to live with their adult children. The majority of aged parents (about 80%) at least have a child who lives near from them; about 58% adult children will meet their parents at least once a week [6].

To top it off, many of today's younger workers are children of China's one-child policy, which means that they alone are responsible for taking care of their
parents, especially their health care when they retire. In order to keep their parents’ health in good condition, they have to spend not only huge medical expenditures but also their time. In order to solve this problem, Chinese adult children turn to Internet for help. 32nd Statistical Report on Internet Development, a survey published by China Internet Network Information Center (CNNIC), showed that population of Chinese cyber citizens is 591 million up to June, 2013 with the Internet penetration being 44.1% [7]. The needs for health care from older populations are growing and internet based health information systems have the potential to improve the access to health information and ease communication between patients and health service providers [8]. Furthermore, internet based health information is a common source for adult people and their relatives to diagnose the disease or increase their understanding for disease.

In China, the most frequently accessed information among cyber citizens who have above average incomes and more than 25 years is health information. It seems that searching health information on the Web has yet to develop as a trend in the region. The internet is an increasingly important source of health-related information for patients and users [1]. Individuals depend on the Internet for health related information and are reporting that this information influences their health behaviors [9]. Lee et al (2013) found that the internet is the vital source for health information and influence health behavior, although general people are more concerned about risk and have little skills and knowledge to use it [10]. Among those who use the Internet, more than 70% report that the health information they find influences a decision about treatment [11]. Users depend on online health information for a variety of reasons. These include more up-to-date information, readily accessible, alternative treatment options and receiving limited lifestyle guidance when seeking advice from doctors in health care [12,13,14]. However, the Pew Research Center’s Internet & American Life Project (Pew Internet for short), an American market research firm, found that more than one quarter of U.S. adults had no online presence, and many Americans used a slow-speed connection, which is also happening in China.

Non-users were more likely to less educated, poor, over the age of 65 and disabled [15]. Thus, adult children always search health information for their aged parents. We can conjecture some evidence describing adult children’s reasons for searching and seeking online health information. These include worrying about their parents’ health, seeking specific information about their parents’ health issues, conducting risk evaluation, sickness prevention, or self-diagnosis for themselves and their parents [16]. Searching health information on the Internet is increasing day by day, although there are some problems such as risk, security and privacy [17].

While the researchers in different countries mostly research on parents’ health information search for their children [13, 18, 19, 20, 21, 22], they seldom focus on adult children’s decisions to use health information for their parents’ health care, letting alone focus on their decisions to use online health information especially in Chinese context. Thus, there is a need to examine systematically the processes underlying adult children’s decisions to use online health information for their parents’ health care. This study addresses this gap in the literature by using the Theory of Planned Behavior (TPB) to understand the determinants of adult children’s decisions to use online health information to diagnose and/or treat their parents’ health issues and to increase understanding about their parents’ diagnosis or treatment.

2. Theoretical Framework

Figure 1 shows the research model which was modified from the Theory of Planned Behavior (TPB) developed by Ajzen (1991) [23]. Risk perception including absolute risk, relative risk, and risk severity were added into the research model. The model hypothesizes that the most important determinant of adult children’s decision making behavior is intention, whereas intention in turn, is predicated by attitude, subjective norm, perceived behavioral control (also thought to directly predict behavior) and risk perception.

![Figure 1. Extended Theory of Planned Behaviour](image-url)
2.1. The Theory of Planned Behaviour (TPB)

The Theory of Planned Behavior (TPB) is the well-established and most influential theory in predicting behavior and explaining the determinants of people’s decision making [24]. The TPB postulates intentions as the most important determinant of behavior. Behavioral intentions are motivational factors that capture how people are willing to try to perform a behavior [25]. Three independent determinants of intention are attitude, subjective norm, and perceived behavioral control (PBC).

Attitude captures a person's overall evaluation of performing the behavior. The attitude toward the behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question [26]. In the case of this context, when adult children find it necessary/good searching health information for their parents, they are more likely to intend to engage in behavior. Subjective norm is defined as “person's perception that most people who are important to him think he should or should not perform the behavior in question” [27]. The literature suggests a positive relationship between subjective norm and intended behavior and some empirical work has shown that subjective norm influences behavioral intentions toward information system use [28]. In the case of online health information search, if an adult child believes that important people such as relatives or friends think that searching information for their parents are important, they are more likely to intend to perform these behaviors. Perceived Behavior Control (PBC) is a topic that has been debated in the social psychology literature. PBC refers to “the perceptions of internal and external constraints on behavior and encompasses self-efficacy, resource facilitating conditions, and technology facilitating conditions” [27]. It is supposed to reflect past experience as well as anticipated obstacles and barriers. Thus, if an adult has the necessary materials to search health information online for their parents, and finds the behavior easy, they are more likely to have strong intentions to perform the behavior. There are two components of perceived behavioral control; the first deals with self-efficacy, an individual’s self-confidence regarding the ability to undertake a behavior and second component deals with facilitating conditions or controllability that provide the resources to engage in a behavior.

We use TPB to determine predictors of adult children’s intentions and behaviors related to using online health information for their aged parents’ health care. Thus, the target behavior of using elderly health information from the Internet is to 1) diagnose and/or treat their aged parents’ suspected medical condition/illness (referred to as diagnose/treat) and 2) increase understanding about a diagnosis or treatment recommended by a health professional (referred to as increase understanding) [29]. The relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention is expected to vary across behaviors and situations. Some studies have used the TPB to understand parents’ decision making to use online child health information [30,31]. Other studies have used the TPB to explain and predict the process of e-commerce adoption by consumers [32,33]. But none were identified which use the TPB to explain adult children’s decisions to use online information for their parents’ health care. Since TPB has shown relative success in decision predicting, we now infer that TPB can be used to explain Chinese adult children’s decisions to search health information for their parents. Thus, we propose the following hypotheses:

\[ H1a: \text{Attitude would predict adult children’s intention to use elderly health information for treatment.} \]

\[ H1b: \text{Attitude would predict adult children’s intention to use elderly health information for increased understanding.} \]

\[ H2a: \text{Subjective norm would predict adult children’s intention to use elderly health information for treatment.} \]

\[ H2b: \text{Subjective norm would predict adult children’s intention to use elderly health information for increased understanding.} \]

\[ H3a: \text{PBC would predict adult children’s intention to use elderly health information for treatment.} \]

\[ H3b: \text{PBC would predict adult children’s intention to use elderly health information for increased understanding.} \]

\[ H4a: \text{PBC would predict adult children’s actual performance to use elderly health information for treatment.} \]

\[ H4b: \text{PBC would predict adult children’s actual performance to use elderly health information for increased understanding.} \]

\[ H5a: \text{Intention would predict actual performance to use elderly health information for treatment.} \]

\[ H5b: \text{Intention would predict actual performance to use elderly health information for increased understanding.} \]

2.2. Risk Perception

The Theory of Planned Behavior (TPB) is open to include additional variables because a large proportion of variance unaccounted for both intentions and behavior. Perceived Risk is an
important variable in health information domain. Given the potential for unreliable or biased information to be presented online, wrong judgments may harm the elderly. Strong evidence was obtained indicating that inappropriate drug use is associated with subsequent decrease in self-perceived health status in the elderly [34]. Zwaan et al (2013) found the strong relationship between inappropriate health information and diagnostic errors which increase the risk and harm of patients [35]. Accordingly, there may be risks associated with using online information, especially if the information is used to diagnose and/or treat parents’ health care issues. Similarly, using online health information to increase understanding about diagnosis or treatment still involves the risk that the information found is not reputable, out-of-date, or inaccurate. Moreover, trust in health systems and perceived risk also plays significant role in users’ access to medical information and self-reported status.

Many respondents in Kendra L’s research reported their try to determine the accuracy of the healthcare websites that they visited, either by looking for government or professional organization endorsements or by their perception of author credentials [36]. In addition, physicians directing patients to websites for health information must be confident that the site is maintained and updated by a reliable and credible source. Put together, we can conjecture that considering the inaccuracy of online health information and their parents’ health condition, adult children will make more cautious decisions when they use online information for their parents. Thus, we included risk perception as an additional construct to investigate in this context. Researcher suggests that risk perception is an important element in the decision-making process [37]. It is argued that when perceived risk falls below individual’s acceptance value, it has little effect on intended behavior and is essentially ignored. On the other hand, an extremely high level of perceived risk can cause individual to postpone or avoid something entirely. Walsh et al (2009) showed that perceived risk were the predictors of parents’ decision making but he didn’t do further investigation on risk perception [30]. Referring to the HAPA risk perception is assessed as a combination of three components--- absolute risk, relative risk, and risk severity [38]. Since adults’ decision making to use online elderly health information is common in health behavior, we introduce these three components in this context.

2.2.1. Absolute Risk: In the context of using online health information for adults’ parents, absolute risk refers to vulnerability or how likely it is an adult estimates that using health information will lead to negative outcomes. If adult children feel that it is likely harming their parents if they use online information to diagnose/treat or increasing understanding their aged parents’ health, they will make more cautious decisions, meaning that their behavior is affected. Thus, we hypothesize that:

H6a: (less) Absolute risk would predict adult children’s intention to use elderly health information for treatment.

H6b: (less) Absolute risk would predict adult children’s intention to use elderly health information for increased understanding.

2.2.2. Relative Risk: Optimism bias is a well-documented phenomenon which suggests that individuals may underestimate the likelihood that they will encounter negative consequences from partaking in risky online health information using behavior. So it is necessary to distinguish absolute risk from relative risk. Relative risk relates to the vulnerability of the individual to negative outcomes compared to other people and their age and gender. It may also affect adults’ decision making. Therefore, we propose the following hypothesis:

H7a: (less) Relative risk would predict adult children’s intention to use elderly health information for treatment.

H7b: (less) Relative risk would predict adult children’s intention to use elderly health information for increased understanding.

2.2.3. Risk Severity: Risk Severity measures how severe the individual perceives the negative consequence to be. The more severe the consequences are, the less likely adults’ will use online health information to diagnose/treat their aged parents. Thus, we hypothesize that:

H8a: (less) Risk severity would predict adult children’s intention to use elderly health information for treatment.

H8b: (less) Risk severity would predict adult children’s intention to use elderly health information for increased understanding.

3. Methodology

3.1. Survey Measures

Francis et al (2004) guidelines for constructing questionnaire of TPB were followed in this study [39]. Items of questionnaire in this study were based on the items used by Walsh (2012) and Thomson
The risk perception measure was derived from HAPA model of Schwarzer et al. (2003) [38]. The target behavior is “diagnose/treat” and “increase understanding” for short.

Attitudes were measured as the mean of three semantic differential scales (e.g. [target behavior] would be: bad-good, unnecessary-necessary, worthless-useful). Participants rated on a scale of 1-7 with a higher score indicating a more positive attitude. Items were averaged to create reliable scales. Two Cronbach’s alpha coefficient of 0.935 (diagnose/treat) and 0.951 (increase understanding) was reported.

Subjective norm was measured by a three items “people who are important to me think I should [target behavior]”, “people who influence my behavior think that I should [target behavior]”, “people whose opinions that I value prefer that I should [target behavior]” (strongly disagree–strongly agree), scored 1-7 with a higher score indicating more normative pressure.

PBC was assessed as the mean of two items including an item for controllability (“It is mostly up to me whether I [target behavior]” (strongly disagree–strongly agree), and another for self-efficacy (“for me to [target behavior] is” (difficult–easy), a higher score indicating more controllability). For this variable a Cronbach’s alpha coefficient of 0.34 (diagnose/treat) and 0.297 (Increase understanding) was reported. Due to moderate internal consistency and low correlation, PBC was broken into two separate scores, controllability and self-efficacy.

Risk Perception was measured with three risk components—absolute risk, relative risk and risk severity. Absolute risk was measured with two items (What do you think the chances are of you harming your parents if you [target behavior]). This was measured on a 7 point Likert scale from very low to very high. Relative risk was measured by asking participants, compared to other people of your age and sex, if you [target behavior] how do you estimate the likelihood that you will harm your parents. The third component measured was risk severity (How severe if you have harmed your parents when you [target behavior], scored 1-7 with a higher score indicating more severe). The combined effect of absolute, relative risk and risk severity had a Cronbach’s alpha coefficient of 0.652 (diagnose/treat) and 0.654 (Increase understanding), so it is necessary to make risk perception broken into three separate scores.

Intention was measured as the mean of three items, each measured on seven-point scales (expect/want/intend [target behavior]). For intention, the alpha coefficient was 0.805 (diagnose/treat) and 0.846 (Increase understanding).

Behavior was measured by asking participants “In the past 6 months, I have [target behavior]”, scored 1 strongly disagree to 7 strongly agree; “In the past 6 months how often did you [target behavior]”, scored 1 never to 7 always. Two Cronbach’s alpha coefficient of 0.923 (diagnose/treat) and 0.897 (increase understanding) was reported.

### 3.2. Participants

The data were collected from teachers and students at different participating Universities in Wuhan, China. They were more than 20-year-old adults. Participants completed all measures of questionnaire in one sitting in the provided URL. All returned questionnaires were manually checked to ensure there were no missing or ambiguous answers. A total of 220 questionnaires were received, of which 22 were incomplete and were therefore excluded from the final analysis.

### 3.3. Data Analysis

Data were analyzed using SPSS version 21. Means, standard deviations, and bivariate correlations were examined to determine the interrelationships between all cognitive variables and behavior. Bivariate correlations between intentions to perform each target behavior, and bivariate correlations between actual performances of each behavior were examined also. Exploratory analyses were run to investigate any demographic differences in behavior and add those examined demographic factors into hierarchical multiple regression analyses. A series of hierarchical multiple regression analyses were conducted to predict adult intentions to perform each target behavior of using elderly health information and actual performance of each target behavior in a six-month period. For each hierarchical multiple regression for predicting intentions, the TPB variables were entered at Step 1; risk perception including absolute risk, relative risk and risk severity were entered at Step 2. For each hierarchical multiple regression for predicting behavior, intention was entered at Step 1; PBC at Step 2.

### 4. Result

Out of 198 participants there were 113 males and 85 females. Most of them are aged about 30. ’26-30’ and ’31-35’ age groups are accounted for 36.9% and 35.9% respectively, while only 1% accounted for
more than 50 years. About 54% of respondents have spent more than 5 hours on internet, whereas only 3% have spent less than 1 hour. A large proportion of the respondents (68.7%) have little medical knowledge and only .5% has much medical knowledge. The majority of the respondents hold college degree (41.9%) or master’s degree (47.5%). In terms of online elderly health search, 17.2 percent of participants reported that they never use online health information to treat/diagnose for their parents, whereas, only 3% of the participants claimed that they always do this. About 16.7 percent of participants reported that they never use online health information to increase understanding for their parents, while only 4.5% of the participants claimed that they always do this.

A table of Pearson’s bivariate correlations between all cognitive variables and the two behaviors are shown below in Table 1 and Table 2. The bivariate correlation between intentions to perform each target behavior (r (198) = .72, p < .001) as well as the bivariate correlation between actual performance of each behavior (r (198) = .65, p < .001) showed that, although the target behaviors were related, they were not identical.

Table 1. Means, standard deviations, and bivariate correlations for the diagnose/treat

<table>
<thead>
<tr>
<th>Variable</th>
<th>AT</th>
<th>SN</th>
<th>CO</th>
<th>SE</th>
<th>AR</th>
<th>RR</th>
<th>RS</th>
<th>IN</th>
<th>BE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6</td>
<td>0.03</td>
<td>-0.07</td>
<td>-0.02</td>
<td>0.350</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SD</td>
<td>7</td>
<td>-0.10</td>
<td>0.10</td>
<td>0.167</td>
<td>-0.04</td>
<td>0.512</td>
<td>-0.186</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>r</td>
<td>8</td>
<td>0.255</td>
<td>0.257</td>
<td>0.315</td>
<td>-0.226</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>**4.95</td>
<td>9</td>
<td>0.499</td>
<td>0.465</td>
<td>0.109</td>
<td>-0.272</td>
<td>-0.04</td>
<td>-0.14</td>
<td>0.07</td>
<td>-</td>
</tr>
<tr>
<td>**4.51</td>
<td>Mean</td>
<td>4.95</td>
<td>4.80</td>
<td>5.58</td>
<td>4.78</td>
<td>4.49</td>
<td>3.74</td>
<td>4.51</td>
<td>4.95</td>
</tr>
<tr>
<td>SD</td>
<td>1.59</td>
<td>1.63</td>
<td>1.50</td>
<td>1.81</td>
<td>1.66</td>
<td>1.64</td>
<td>1.70</td>
<td>1.70</td>
<td>1.68</td>
</tr>
</tbody>
</table>

*Denotes significance at the .05 level; **Denotes significance at the .01 level.

**Table 2. Means, standard deviations, and bivariate correlations for the increase understanding behavior**

### 4.1. Predicting Intention

Hierarchical multiple regression analysis predict adults’ intentions to use elderly health information to diagnose/treat their parents’ suspected medical condition/illness (see Table 3 and Table 4). The result showed that the TPB variables accounted for 18.3% of the variance of intentions in Step 1. In Step 2, it was found that risk was a significant predictor of intention, and increased the proportion of variance explained an additional 2.6%. However, attitude, PBC (controllability), and (less) relative risk were significant predictors, where subjective norm, self-efficacy, absolute risk and risk severity were not.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Diagnose/Treat</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>0.216</td>
<td>0.047</td>
<td>0.042</td>
</tr>
<tr>
<td>SN</td>
<td>0.070</td>
<td>0.628</td>
<td>0.531</td>
</tr>
<tr>
<td>CO</td>
<td>0.215</td>
<td>2.932</td>
<td>0.004</td>
</tr>
<tr>
<td>SE</td>
<td>0.065</td>
<td>0.906</td>
<td>0.366</td>
</tr>
<tr>
<td>RR</td>
<td>-0.184</td>
<td>0.042</td>
<td>0.428</td>
</tr>
<tr>
<td>RS</td>
<td>0.115</td>
<td>1.393</td>
<td>0.165</td>
</tr>
</tbody>
</table>

**Table 3. Hierarchical Multiple regressions (Diagnosis)**

For using elderly health information from the Internet to increase understanding about a diagnosis or treatment recommended by a health professional, the TPB predictors at Step 1 explained 22.6% of the variance. At Step 2, risk perception increased the
explained variance by 1.2%. Attitude and subjective norm were the significant predictors of intention for both step 1 and 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Increase Understanding</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
<th>( R^2 )</th>
<th>( R )</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>0.237</td>
<td>2.366</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>0.218</td>
<td>2.209</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>0.003</td>
<td>0.044</td>
<td>0.97</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>0.114</td>
<td>1.703</td>
<td>0.09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.23</td>
<td>0.48</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Hierarchical Multiple regressions (Understanding)

4.2. Predicting Behavior

A regression analysis predicting adults’ use of elderly health information on the Internet to diagnose/treat their parents’ suspected medical condition/illness presented in Table 5 and Table 6. The result showed that intention at Step 1 explained 9.9% of the variance in behavior. At Step 2, PBC increased the explained variance by 4.4%. Intention and PBC (self-efficacy) were the significant predictors of diagnose/treat behavior.

For using of elderly health information on the Internet to increase understanding of a diagnosis/treatment from a health professional, the Step 1 variables explained 11.2% of the variance in behavior. At Step 2, PBC increased the explained variance by 2.9%. Intention and PBC (self-efficacy) were the significant predictors of increasing understanding behavior.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Diagnose/Treat</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
<th>( R^2 )</th>
<th>( R )</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>0.373</td>
<td>4.634</td>
<td>0.00</td>
<td></td>
<td>0.099</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Table 5. Hierarchical Multiple regressions (Diagnosis)

This is one of the first studies which apply the TPB model in predicting adults’ decision making to use online elderly health information to 1) diagnose and/or treat suspected medical condition/illness or 2) increase understanding about a diagnosis or treatment recommended by a health professional in the context of China. It also offers valuable analysis and recommendations to other countries’ researches. The study has revealed that adults were more likely to use online health information to increase their understanding about a diagnosis or treatment than to diagnose and/or treat their parents’ health issues.

5. Discussion

5.1. Predicting Intention

Adults with a more positive attitude toward using online elderly information, who perceive less relative risk and believe they have greater control will have stronger intentions to use online elderly information for their parents’ health care. This result is consistent with Lanseng and Andreassen (2007) that attitudes have a very good ability to predict future behavioral intent [40]. It is clearly showed from the result that attitudes and subjective norm were significant predictors when adults use online elderly information to increase understanding. By creating a greater awareness of using online health information among significant others, adults may consequently feel a greater pressure to ensure their parents engage in proper diagnose or treat. In mainland China, the
Confucian concepts of filial piety which demand that children be devoted to their parents, is one of the most salient and commonly shared cultural values. Accordingly, the Chinese have developed a set of behavioral rules for family life: adult children must provide care and respect for the elderly. Violation of these socio-cultural norms can lead to tremendous stress [4]. Filial piety is deeply rooted in every Chinese mind, so adult children will use online health information to diagnose/treat by instinct even if there is no social pressure on them.

Self-efficacy of PBC was not a significant predictor of both intentions. In the model, the online elderly information searcher is not the ultimate information user, so it is hard to self-judge whether the expectation is successful or not for the adult children.

The additional variables of (less) relative risk perception predicted intentions, meaning that the adult won’t use online elderly health information to treat/diagnose or increase understanding if they have a forecast of high relative possibility of using risky and inaccurate information compared with other people. Despite the dearth of literature exploring factors predicting parents’ internet use, some studies have found worry to be a predictor of internet use. This finding can direct the development of methods for informing adults about appropriate websites to guide appropriate online help-seeking actions among adults. It is important for the health and well-being of them, and for the societies to which they belong, that the information they acquire in this way be, on the whole, accurate and professional.

Adult children always searching different types of internet based health solution because of diverse health needs and ill experience of their aged parents. The quality of online elderly health information should be high and checked. In the one hand, designer, developer and managers of credible, reliable online elderly health information, such as hospital and government sites, must be challenged to ensure their sites are the first to appear through Google, Baidu and other similar search engines. On the other hand, some commercial health websites should be responsible for the elderly health information they issue. Additionally, a series of criteria should be used to evaluate the quality of these health websites’ information. There are developed methods for evaluating online health information. Eysenbach et al (2002) carried out a systematic review of health website evaluations and noted that the most frequently used quality criteria included accuracy, completeness and readability and design [41].

5.2. Predicting Behavior

It has been proved that adults with stronger intentions and positive self-efficacy to use online information to diagnose/treat their parents’ health issues and to increase understanding for their aged parents are more likely to actually do so. In the prediction of adults’ behavior, controllability of PBC cannot significantly predicted adults’ decisions to use online health information to treat/diagnose and increase understanding. The finding is consistent with Ajzen’s (1991) proposal that PBC becomes less useful in predicting behavior as volitional control over behavior increases [23]. It is possible that participants are not accurate in judging how much control they actually have over using online information for their parents’ health issues due to factors outside of the their control, such as the information requested not being available or easy to comprehend.

The second and following pages should begin 1.0 inch (2.54 cm) from the top edge. On all pages, the bottom margin should be 1-1/8 inches (2.86 cm) from the bottom edge of the page for 8.5 x 11-inch paper. (Letter-size paper)

6. Limitations and Future Directions

This study is a significant addition to the literature, in that it is one of the few to investigate predictors of adults’ decision making on online health information use. The research has a number of strengths including the extending a well-validated theoretical framework to prospectively examine an important and topical behavior, a consideration of the impact of a range of covariates and a specific context.

However, the current study has a number of limitations. The use of self-report data may facilitate socially desirable responses. Further, the online survey possibly created higher surfing abilities in participants, which might result in a relative high education level in the survey. Since the respondents were recruited as volunteers without pay and the questionnaire need several minutes to complete, some respondents filled the questionnaire casually and impatiently, which lowered the quality of data. Another potential limitation is the use of the self-report behavior items which may not be the most appropriate measure to determine how often the internet was used to look for information to manage aged parents’ health care or diagnose/treat. A final limitation is that participants may have not interpreted the questionnaire items as intended by the
researchers as misinterpretation of items can be one of the greatest problems encountered with TPB questionnaires [42].

Future research, then, should consider other variables which might predict the use of online information seeking behavior for elderly health care, such as the influence from people of the same age and sex and other demographic factors and extrinsic motivation. It may be useful for future research, in addition to investigating other variables of interest in this context, to investigate also how information seeking behaviors and use patterns are determined based on condition. Future researchers can investigate these factors to check whether it is also proved in other context. Moreover, further investigations can subdivide the elderly health information to observe the different behavior of adults’ decision making for their aged parents. For example, the information sought for heart disease might be different than stroke. Thus there is a need for a more targeted approach based on the information being sort for a particular medical condition. The last but not least, the ultimate users are the aged who have power to decide whether to accept their children’s suggestions, so the respondents of future research can be changed into the elderly themselves. Besides, there are still some old people performing skillfully on the Internet. They can search and use online elderly health information for their own. What’s more, although few today’s Chinese old people can make good command of online information searching, when their adult children get old in the future, online elderly health information users will be the elderly at last. Therefore, it is suggested that future researcher can try to investigate the elderly as respondents.

7. Conclusion

The current study is one of the few to apply TPB to the prediction of online health information use behavior in adult children. The outcome of the study has successfully addressed the hypotheses. It is clear from the results that the theory of planned behavior model can be utilized to predict adults’ decision making to use online elderly health information. The study also demonstrated that the risk perception, which is assessed as a combination of three components---absolute risk, relative risk and risk severity can increase predictability in intention to implement adults’ online health information use behavior, suggesting that researchers may want to incorporate that factor into future considerations of online health use information use behavior using the TPB. However, a portion of variance in this area still remains should be considered in future research.

References


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