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Abstract: With the rapid development of Internet, more and more people got medical information through Medical and Health Website. However, Medical and Health Website is still in infancy, its social influence is not significant, and this new Internet technology has not been widely accepted in our country. Most scholars mainly concentrate on technology and management institution when researching the Medical and Health Website. In order to study user's behavioral intention and use behavior on Medical and Health website, a theoretical model is built based on Unified Theory of Acceptance and Use of Technology (UTAUT) with the consumer perceived risk theory and perceived cost. The questionnaire is designed according to the theory model. Then, the data is analyzed by descriptive statistics, reliability and validity and multiple linear regression. The results indicate that people's use behavior is positive influenced by behavioral intention and effort expectancy. On the contrary, perceived cost has negative influence on use behavior. Perceived risk has negative influence on behavioral intention. Gender and experience have moderating effects on behavioral intention. However, it is not verified that social influence has positive influence on behavioral intention. At last, this paper provides some countermeasures and suggestions to promote the development of Medical and Health website.

Keywords: Medical and Health Website, UTAUT, perceived risk, perceived cost, regression analysis

1. INTRODUCTION

Medical and Health Website is born in mid-90s of last Century on the Internet. Especially after the outbreak of "SARS" in the 2003, thousands of Medical and Health websites are emerged quickly within a few years. Now, searching keyword "Medical and Health Website" through the Baidu Website, there are about 23500000 results. The statistical report of Chinese Medical and Health website market in 2011 is published by China Internet laboratory with China Internet Index System (CIIS) [1]. The report demonstrates that "39" Health website (www.39.net) is ranked first, and its market share is 23.5%.

Medical and Health websites are the service platform which can provide overall and authoritative medical and health information for entire society. It has many functions, such as publishing a variety of medical and health information, medicine information, real-time diagnosis and so on. According to the different location, Medical and Health Website can be roughly divided into four categories [2]. The first category is health portal website, such as www.39.net, www.ewos.com and so on. The second category is guiding service website, such as www.120ask.com, www.haodf.com and so on. Third category is medicinal information website, such as www.iiyi.com, www.shouxi.net and so on. Fourth category is Electronic Commerce website, such as www.818.com and so on.

As a new thing, the academic research on this kind of website has been carried out. Zhu lei et al (2012) demonstrated the concept, characteristics, advantages and disadvantages, implementation technology of Medical and Health website [3]. And suggested Medical and Health website has a promoting effect on the traditional medical service. Hu Miao (2012) discussed the history and current situation of Medical and Health website [4].

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Meanwhile she analyzed the technology, the market demand and investment of Medical and Health website. Last she pointed out that Medical and Health website has broad development prospect. Zhang Qinyao et al (2010) studied the evaluation index system based on customer satisfaction of information service on Medical and Health website by empirical methodology [5].

Although the development prospect of Medical and Health website is very optimistic, currently its influence is lower, and its attractiveness is not enough. The website traffic is lower. The quality of the website is uneven, and the overall level of the website is not high. Aiming at these problems, some scholars put forward the corresponding countermeasure. An Jiye (2009) proposed the frame and model of information service on Medical and Health website in order to solve the information chaos [6]. Zhong Wenjing (2009) suggested that improved business model to enhance operational efficiency of the Medical and Health website [7]. Ren Jingjing et al (2011) suggested that the technology of Internet of things is applied on Medical and Health website to enhance the website intelligence [8].

The above scholars mainly concentrate on technology, business model, marketing means, and management institution, and so on. A few scholars carry out research on Medical and Health website from user acceptance behavior theory. In this paper, user access behavior on Medical and health website is analyzed with Unified Theory of Acceptance and Use of Technology (UTAUT), in order to find the critical factor influencing user intention and behavior, and propose countermeasures to promote Medical and Health website development.

2. THEORY AND HYPOTHESIS MODEL
2.1 User Acceptance of Information Technology Theory

Davis et al research user acceptance of information technology theory in 1989. Davis suggested Technology Acceptance Model (TAM) based on Theory of Reasoned Action (TRA) [9]. Two core concepts- Perceived Usefulness and Perceived Ease of Use-are presented in TAM. Perceived Usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance". Perceived Ease of Use refers to "the degree to which a person believes that using a particular system would be free of effort". This model soon attracted widespread attention in domestic and foreign academic circles. The research results are also very rich. Technology Acceptance Extended Model (TAM2) which Venkatesh and Davis proposed is the most important model after TAM [10]. The purpose of TAM2 is to find other key factors except perceived usefulness and perceived ease of use, and to enhance the adaptability of technology acceptance model.

With the development of Internet, information technology improves people's working efficiency.   At the same time, it also can be used for recreation, such as online games, online movies, and online chat and so on. It is not enough that explain user acceptance behavior of recreational information technology only with perceived usefulness and perceived ease of use. Because of the limitations of TAM model and TAM2 model, Venkatesh et al proposed Unified Theory of Acceptance and Use of Technology (UTAUT) based on eight models [11], such as TAM, TAM2, and Motivational Model and so on.

It is more and more widely that the acceptance behavior of variety information technology is researched with User Acceptance of Information Technology Theory. This paper proposed these hypotheses based on this model.

H1: Performance expectancy will have a positive influence on behavioral intention.
H2a: Effort expectancy will have a positive influence on behavioral intention.
H2b: Effort expectancy will have a positive influence on use behavior.
H3: Social influence will have a positive influence on behavioral intention.
H4: Behavioral intention will have a positive influence on use behavior.

2.2 Consumer perceived risk theory

Perceived risk theory was extended from psychology in 1960 by Bauer of Harvard University [12]. He proposed: the expected results were uncertain whatever purchase behavior of consumers, but some results might make consumers unpleasant. Stone and Gronhaug (1993) took perceived risk simply define as: it was expected losses relevant buy behaviors [13]. They put forward six dimensions: financial, performance, physical, psychological, social and time. Perceived risk theory in foreign research is still relatively mature. The research covers many industries by empirical methodology. In China, the research on perceived risk is still in the initial stage.

On the basis of previous research, and combining with the actual characteristics of medical and health website, the risk of user mainly consider on economic risk, privacy risk, and functional risk of the medical health website. This paper proposed the hypothesis.

H5: Perceived risk will have a negative influence on behavioral intention.

2.3 Perceived cost

Perceived cost refers to the level of perception of price level of medical and health website users rather than the absolute price. In the theory of value, perceived value can be divided into two aspects: the perceived benefits and perceived loss. When actually using of a product or service, consumers will consciously compare benefit and loss. When perceived benefit loss more than gains, they will reject the product or service [14]. The use cost of medical and health website is an important component of consumer perceived loss. The use of Medical and Health website is a consumer flexible demand, therefore the price sensitivity is relatively large.

In a variety of previous studies on medical and health website, the researchers rarely pay attention to perceived cost. Through the practical experiences we can feel: When a product's price is higher than we expected, even if we have very high intention, we are not going to buy. Thus this paper would explore whether perceived cost have an influence on use behavior of consumers. This paper proposed the hypothesis.

H6: Perceived cost will have a negative influence on use behavior.

2.4 Moderator variables

This paper imports four moderator variables: respectively, gender, age, educational level and experience. After verifying the previous hypotheses, this paper verifies whether these hypotheses are moderated by four moderator variables.

H7: The influence of performance expectancy on behavioral intention will be moderated by gender, age, educational level and experience.

H8: The influence of effort expectancy on behavioral intention will be moderated by gender, age, educational level and experience.

H9: The influence of social influence on behavioral intention will be moderated by gender, age, educational level and experience.

H10: The influence of perceived risk on behavioral intention will be moderated by gender, age, educational level and experience.

2.5 Hypothesis model

In summary, the theory model constructed in this paper is as following figure 1.

3 DATA COLLECTION AND PROCESS
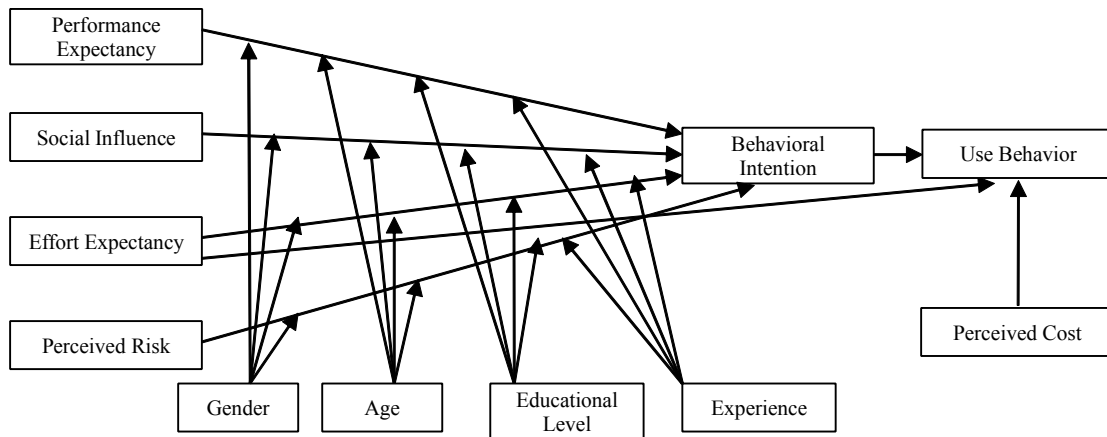
3.1 Variable definition

Figure 1. Theory model

All variables in the conceptual model of this paper are from the existing references. All variables definitions and sources are listed in Table 1.

Table 1. Variables definitions and sources

Variable	Definition	The number of items	Sources
Performance Expectancy	The degree to which an individual believes that using the website will help him or her to attain gains in job performance.	4	[11]
Effort Expectancy	The degree of ease associated with the use of the website.	4	[11]
Social Influence	The degree to which an Individual perceives that important others believe he or she should use the website.	3	[11]
Behavioral Intention	A measure of the strength of one's intention to perform a specified behavior	4	[11], [9]
Use Behavior	At a particular time, the actual use of the website.	4	[11], [9]
Perceived Risk	In the process of visiting the website, it may brings the negative or adverse results of psychological expectations to the users	3	[13]
Perceived Cost	The service charge when people visit the website.	4	[15], [16], [17]

3.2 Data collection and description

Through the definition of the variables and the review of the related literature, all items in the questionnaire were measured by a Likert five-point scale. In the first part, gender, age, degree of education and experience will be investigated. In the second part, All question have five answers-strongly disagree, slightly disagree, uncertain, slightly agree and strongly agree rated on a scale of 1 to 5. Every question is required to fill out the actual situation. Before the questionnaire issue, several experts are invited to test them. They believe that the questionnaire is effective.

The main subjects of investigation are the junior college student, undergraduate students, graduate students, teachers and other college staff. It is commonly that they could surf the internet easily. Paper questionnaires are issued a total of 196, 162 pieces are collected. After excluding some obvious invalid questionnaires, a total of 144 questionnaires are effective. Descriptive statistics is applied to analyze the samples gender, age, degree of education and experience by SPSS. The result is as Table 2.

Table 2. Descriptive

Item	answer	Frequency	Percent
gender	male	78	54.2%
	female	66	45.8%
age	≤23	28	19.4%
	24-33	76	52.8%
	34-43	20	13.9%
	≥44	20	13.9%
degree of education	Junior college or below	30	20.8%
	undergraduate	32	22.2%
	graduate or above	82	56.9%
experience	yes	60	41.7%
	no	84	58.3%

From table 2, we can see that male to female ratio is almost 1:1, more than half of the samples are 24-33 years old, and most of them have bachelor degree or above. It is obviously that the sample distribution is good.

3.3 Reliability and validity

It is essential to assess the reliability of questionnaire, to ensure the quality of surveillance data and outcomes of statistical analysis afterward. This paper uses Cronbach's Alpha which is widely used by scholars to determine the internal reliability. After analysis by SPSS, the Cronbach's alpha index of the questionnaires is 0.726. It indicates that the data is reliable refer to the Cronbach's Alpha score standard.

Validity is the degree that the measurement tool could measure the things which need to measure. Factor analysis is used to test the validity of the data in this paper. Before factor analysis, KMO value test and Bartlett's sphericity test are necessary. Only the KMO value is greater than 0.5 and Bartlett's sphericity test reached significant, factor analysis is suitable. In addition, item may be removed, if its factor loading is too small. When one item becomes a factor, then remove. When the factor loading of one item is less than 0.45, then remove. Every variable is analyzed by factor analysis method. The result is as Table 3.

Table 3. Factor analysis

Variable	Item	KMO	Bartlett's Test of sphericity			Factor loading	Variable	Item	KMO	Bartlett's Test of sphericity			Factor loading
			Approx. Chi-Square	df	Sig.					Approx. Chi-Square	df	Sig.	
bi (Behavioral Intention)	BI1 BI2 BI3 BI4	0.734	105.068	6	0.000	0.654 0.806 0.718 0.755	pe (Performance Expectancy)	PE1 PE2 PE3 PE4	0.656	64.660	6	0.000	0.759 0.569 0.787 0.581
ub (Use Behavior)	U1 U2 U3 U4	0.724	202.078	6	0.000	0.890 0.807 0.754 0.726	ee (Effort Expectancy)	EE1 EE2 EE3 EE4	0.698	134.849	6	0.000	0.686 0.777 0.837 0.692
pr (Perceived Risk)	R1 R2 R3 R4	0.753	162.788	6	0.000	0.856 0.817 0.574 0.812	pc (Perceived Cost)	PC1 PC2 PC3 PC4	0.765	144.046	6	0.000	0.752 0.825 0.778 0.725
si (Social Influence)	SI1 SI2 SI3	0.670	86.819	3	0.000	0.781 0.838 0.789							

4 REGRESSION ANALYSIS

In the regression analysis, we measure the value of factors by weighted average method. Any more, the data are processed by the method of centralization to eliminate the constant. According to the conceptual model proposed in the previous paper, we divide the model into two. Enter method is used in the two regression submodel.

4.1 No.1 Model

The regression equation on this model is obtained that Use is the dependent variable and arguments include Behavioral Intention, Perceived Cost and Effort Expectancy.

$$ub = a_0 + a_1 \times bi + a_2 \times ee + a_3 \times pc + \varepsilon$$

ε is the error term.

SPSS is used to analyze, and the result is as Table 4.

Table 4. No.1 Model

variable	R^2	Adjusted R^2	F Test		Standardized coefficient β	t Test	
			F	Sig.		t	Sig.
bi					0.398	5.344	0.000
ee	0.289	0.274	18.959	0.000	0.283	3.867	0.000
pc					-0.270	-3.671	0.000

Dependent variable: ub

4.2 No.2 Model

The regression equation on this model is obtained that Behavioral Intention is the dependent variable and arguments include Performance Expectancy, Effort Expectancy, Social Influence and Perceived Risk. In addition, four moderator variables would come into the regression equation.

Model 1：
$$bi = a_{10} + a_{11} \times pe + a_{12} \times ee + a_{13} \times si + a_{14} \times pr + \varepsilon_1$$

Model 2：
$$bi = a_{20} + a_{21} \times pe + a_{22} \times ee + a_{23} \times si + a_{24} \times pr + a_{25} \times age +$$
$$a_{26} \times age \times pe + a_{27} \times age \times ee + a_{28} \times age \times si + a_{29} \times age \times pr + \varepsilon_2$$

Model 3：
$$bi = a_{30} + a_{31} \times pe + a_{32} \times ee + a_{33} \times si + a_{34} \times pr + a_{35} \times edu +$$
$$a_{36} \times edu \times pe + a_{37} \times edu \times ee + a_{38} \times edu \times si + a_{39} \times edu \times pr + \varepsilon_3$$

Model 4：
$$bi = a_{40} + a_{41} \times pe + a_{42} \times ee + a_{43} \times si + a_{44} \times pr + a_{45} \times gen +$$
$$a_{46} \times gen \times pe + a_{47} \times gen \times ee + a_{48} \times gen \times si + a_{49} \times gen \times pr + \varepsilon_4$$

Model 5：
$$bi = a_{50} + a_{51} \times pe + a_{52} \times ee + a_{53} \times si + a_{54} \times pr + a_{55} \times exp +$$
$$a_{56} \times exp \times pe + a_{57} \times exp \times ee + a_{58} \times exp \times si + a_{59} \times exp \times pr + \varepsilon_5$$

Hereinto, ε is the error term, *age* expresses age, *edu* expresses degree of education, *gen* expresses gender, and *exp* expresses experience.

SPSS is used to analysis, and the result is as Table 5.

Table 5. No.2 Model

variable	Model 1 Standardized coefficient β	Model 2 Standardized coefficient β	Model 3 Standardized coefficient β	Model 4 Standardized coefficient β	Model 5 Standardized coefficient β
pe	0.515*	0.531*	0.537*	0.480*	0.526*
ee	0.120*	0.125*	0.105*	0.145*	0.048
si	0.020	0.017	0.022	0.026	-0.016
pr	-0.413*	-0.424*	-0.394*	-0.398*	-0.397*
age		-0.088			
age×pe		0.020			
age×ee		-0.034			
age×si		-0.017			
age×pr		0.021			
edu			0.012		
edu×pe			0.086		
edu×ee			-0.033		
edu×si			0.010		
edu×pr			-0.018		
gen				-0.124*	
gen×pe				0.067	
gen×ee				0.030	
gen×si				0.028	
gen×pr				0.041	
exp					-0.165*
exp×pe					-0.053
exp×ee					0.050
exp×si					0.016
exp×pr					-0.064
R^2	0.617	0.626	0.627	0.638	0.642
Adjusted R^2	0.606	0.601	0.602	0.614	0.618
R^2 Change		0.001	0.009	0.021	0.025
F	56.092*	24.965*	25.056*	26.249*	26.704*

Note: *$p<0.05$.

5. RESULTS AND DISCUSSION

In No.1 model, R^2 is equal to 0.289 that may be small in a way. However, it is could be accepted. It indicates that the fitting degree of equation is not bad. Any more, the equation is examined with F test, and the result suggests that the equation is very significant. After all, every variable is examined with T test, and the results suggest that standardized coefficient β are significant, too. Now, H4, H2b and H6 have been validated.

Individual's action of visiting Medical and Health website is most influenced by their Behavioral Intention. Individuals' Effort Expectancy would influence their action, too. Any more, people would not accept the services on Medical and Health website if they believe that the cost is too high. When building Medical and Health website, the operators should pay more attention to people's behavioral intention. A variety of effective marketing means should be adopted in order to improve people's behavioral intention. On the web design, it may eliminate the technology barrier when people accept services on Medical and Health website if the pages are concise, reasonable and easy to use. For the cost, it would negatively affect people's action. So, fees need to be open to the consumers, and the operators should be honest. It is also a good idea to reduce the price appropriately.

In No.2 model，R^2 of every submodel is greater than 0.6, so we can say that the fitting degree of equations is good. All of equations are very significant by F test. At model 1, standardized coefficient β of Performance Expectancy, Effort Expectancy and Perceived Risk are significant. However, standardized coefficient β of Social Influence is not significant. Therefore, H1, H2a and H5 have been validated, and H3 is rejected. In table 5, standardized coefficient β of age, degree of education and other correlatives are not significant. Any more, R^2 Change is not significant, too. We conclude that age and degree of education play no moderator action. At model 4, standardized coefficient β of gender is significant; R^2 increases 0.021; Equation is very significant by F test. These data indicate that the moderator action of gender is significant. At model 5, standardized coefficient β of experience is significant; R^2 increases 0.025; Equation is significant by F test. These data indicate that the moderator action of experience is significant, too.

Individuals' Behavioral Intention of Medical and Health website is not influenced by Social Influence. The most promising reason is that everyone has their own understanding of their physical health which is little influenced by others. The Behavioral Intention of user is mainly determined by performance expectancy. Effort Expectancy is expected to have a certain impact. However, Perceived Risk negatively influences Behavioral Intention. Therefore, the website operators should give the user a sense of this medical and health website is useful. In addition, it can improve their standard of living by visiting medical and health website. Finally, operators should strive to eliminate the user's economic risk, privacy risk and functional risk.

For people's Behavioral Intention, young and old people are the same. People's degree of education has no moderated effect on Behavioral Intention. However, gender and experience have moderated effect on Behavioral Intention. For the factors that influence Behavioral Intention, the female is more sensitive. After experience entered to model, Effort Expectancy effect on Behavioral Intention did not exist any longer. It indicates that user who has been received the services from Medical and Health website can visit the website easily.

The results show as Table 6.

Table 6. Results of analysis

H1	Performance expectancy will have a positive influence on behavioral intention.	support
H2a	Effort expectancy will have a positive influence on behavioral intention.	support
H2b	Effort expectancy will have a positive influence on use behavior.	support
H3	Social influence will have a positive influence on behavioral intention.	no support
H4	Behavioral intention will have a positive influence on use behavior.	support
H5	Perceived risk will have a negative influence on behavioral intention.	support
H6	Perceived cost will have a negative influence on use behavior.	support
H7	The influence of performance expectancy on behavioral intention will be moderated by gender, age, educational level and experience.	partially support
H8	The influence of effort expectancy on behavioral intention will be moderated by gender, age, educational level and experience.	partially support
H9	The influence of social influence on behavioral intention will be moderated by gender, age, educational level and experience.	partially support
H10	The influence of perceived risk on behavioral intention will be moderated by gender, age, educational level and experience.	partially support

6. CONCLUSIONS

This paper has launched a series of research on Medical and Health websites based on UTAUT, and achieved certain results. However, due to personal ability, time and other factors, this paper still has many deficiencies. The information existed in sample is a little limited, because of the small sample size. In the further study, we are going to pay more attention to design questionnaire and collect data. In addition, it is valuable that studying the reason why people's behavioral intention is not influenced by his or her social influence. It is also possible that with the development of Medical and Health website, social influence would play a role in the future.

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