Chapter Five

Healthcare Information and the Utilization of Pap-smear Testing amongst Taiwanese Women

5.1. Introduction

As the most common form of female malignancy and the leading cause of death amongst women in many countries, cervical cancer clearly poses a major health problem. Papnicolaou (Pap) smear testing has been identified as the most effective method available for reducing both the incidences and the mortality rate arising from this extremely invasive form of cancer (Liu et al., 1988; Koss, 1989; Abdullah and Leung, 2001; Adams et al., 2003). If detected and treated sufficiently early, through the use of Pap-smear testing, the cure rate for cervical cancer can be as high as 70 to 90 per cent (Cramer, 1974; Guzick, 1978; Clarke and Anderson, 1979; Sigurdesson, 1993; Cheek et al., 1999). Many countries have therefore developed appropriate methods for the early detection of cervical cancer and are striving to achieve high levels of adoption of such preventive healthcare services.

The prior studies have revealed a variety of factors associated with Pap-smear testing rates, including socio-demographic characteristics, the cognition of preventive

healthcare, geographical location and the accessibility of medical healthcare services. Those women regarded as being in the lower socioeconomic status (SES) category, including older women (≥60 years) (Chen and Chou, 1995; Mandelblatt et al., 1999), those who are less educated (Chen and Chou, 1995; Wu, 2001; Nguyen, 2002), and those on lower incomes (Katz and Hofer, 1994; Adams et al., 2003; Wang et al., 2005), are less likely to undergo cervical smear examinations. Similar analyses have also demonstrated that poor accessibility (Mandelblatt et al., 1999; Zambrana et al., 1999; Wu et al., 2002), women who are unmarried (Cockburn et al., 1992; Cheek et al., 1999), those living in rural areas (Wang and Lin, 1996; Eaker et al., 2001; Hancock et al., 2001) and those lacking health insurance coverage (Hiatt et al., 2001; Sung et al., 2002; Carrasquillo and Pati, 2004; Rodriguez et al., 2005) were major predictors of low cervical cancer screening rates.

Numerous studies, going as far back as Arrow (1963), have found healthcare information to be a key determining factor in the demand for medical healthcare services, with Kenkel (1990) representing the first study of its kind to undertake direct measurement of medical healthcare information in the estimation of the demand for such services.

Hsieh and Lin (1997) also used direct measurement to examine the linkage between healthcare information and the demand for preventive care amongst the

elderly in Taiwan, whilst Parente et al. (2005) similarly explored the impact of knowledge on the demand for preventive healthcare amongst the elderly. All of these studies have provided support for the notion that individuals with greater levels of information are significantly more likely to use medical healthcare or preventive services.

There are, however, no empirical studies which have specifically set out to explore the relationship between healthcare information and the demand for Pap-smear testing. Whilst there are those studies which have confirmed that women with higher education are more likely to be screened (Hou et al., 2002; McFarland, 2003; Sabates and Feinstein, 2006) these studies have tended to use only the level of education as an indirect proxy for measuring information, and have generally failed to directly measure the determinants of women's healthcare information. However, the information and knowledge obtained by women with regard to cervical cancer screening and Pap-smear testing may clearly play an important role in the utilization of such screening.

As opposed to merely regarding education as a proxy variable for healthcare information, in this chapter we aim to directly examine the determinants of female healthcare information and the linkage between such information and the utilization of Pap-smear testing amongst Taiwanese women between the ages of 25 and 69 years.

The empirical results obtained on the impact of healthcare information on cervical cancer screening may be of considerable importance to healthcare policy decision makers in their attempts to effectively reduce both the incidence rate and the mortality rate for cervical cancer.

Of those prior studies within which exploration of the factors contributing to cervical cancer screening utilization was undertaken, the majority have tended to be heavily reliant upon statewide samples or sub-populations, adopting region-specific or group-specific data. As opposed to the adoption of such potentially biased samples, we adopt nationwide survey data in this study in an effort to improve on some of the shortcomings of the prior studies.

The remainder of this paper is organized as follows. Section 5.2. provides a description of the data, the empirical methodology and the principal variables. This is followed in Section 5.3. by the presentation of the empirical results. A discussion of our empirical findings is provided in Section 5.4., along with the conclusions drawn from this study.

5.2. Methods

5.2.1 Database and Study Sample

The dataset adopted for this chapter was obtained from the 2002 survey of 'Health Promotion of Knowledge, Attitudes and Practice' (HPKAP) carried out by the Bureau of Health Promotion (BHP) at the Department of Health (DOH) in Taiwan. The survey used a multi-stage stratified systematic sampling design method, along with face-to-face interviews, to obtain a total of 32,660 observations on individuals above the age of 15 years on 30 June 2002.

The 2002 HPKAP provides detailed information on nationwide population estimates, including health condition, utilization of medical resources and healthcare behavior within Taiwan's 23 administrative districts. After discarding unusable observations, the HPKAP survey ultimately provided observations on 26,755 people during the five-month period from late October 2002 to March 2003, representing 81.9 per cent of the target population.

The HPKAP database provides in-depth information on personal demographic and socioeconomic characteristics, including age, gender, highest educational attainment, marital status, occupation and individual income, as well as detailed information on the utilization of medical resources, the health status of individuals and other types of health-related behavior.

However, the dataset does not provide details on Pap-smear examinations undertaken by women below the age of 25 years, nor does it contain data on females

over the age of 70 years given that women of such age will rarely use Pap-smear testing, essentially because of the very low incidence rate of cervical cancer amongst women in this particular age group. Women between the ages of 25 and 69 years were therefore selected for our study sample.

After excluding all male observations ($n = 13{,}707$), all female individuals below the age of 25 ($n = 2{,}388$), those above the age of 70 years ($n = 1{,}328$) and those with missing data ($n = 219$), we were ultimately left with a total sample of 9,106 individuals for inclusion in our analysis.

5.2.2 Analytical methodology

Kenkel (1990), Hsieh and Lin (1997) and Parente et al. (2005) applied direct measurement to explore the effects of consumer healthcare information on the demand for medical healthcare services. How a consumer acquires healthcare information was another critical focus of these studies. They estimated the determinants of healthcare information and the decision to get healthcare services simultaneously. In order to avoid the potential simultaneity bias problem, the two-stage procedure being applied in these econometric model.

The primary objective of this empirical study was to explore the impact of healthcare information on the utilization of Pap-smear testing, with the two-stage

estimation method being applied in the econometric model in order to ensure greater accuracy of the empirical results. Two equations were constructed within the empirical model, the first of which was a measure of the determinants of health information, whilst the second provided the estimations of Pap-smear testing.

The endogenous variable of the first equation is a measure of health information (I_i) and assumed to be a function of a vector of characteristics (X_i) and a random error term $\varepsilon_{1i.}$ In the second equation, we estimate the decision to undergo Pap-smear testing ($Paptest_i$), which is clearly affected by health information (I_i), other observable individual characteristics (Y_i) and a random error term $\varepsilon_{2i.}$ These two equations can be expressed as:

$$I_i = \alpha_0 + \alpha_1 X_i + \varepsilon_{1i} \tag{5-1}$$

$$Paptest_i = \beta_0 + \beta_1 I_i + \beta_2 Y_i + \varepsilon_{2i} \tag{5-2}$$

where α_0, β_0 are constants; X_i, I_i, Y_i represent factors (independent variables) which are seen as influencing the decision to accept the healthcare information provided and undergo a Pap-smear test; α_1, β_1, β_2 are the respective sets of coefficients for X_i, I_i, Y_i; and ε_{1i}, ε_{2i} are the residuals.

Since $Paptest_i$ is unobserved, what is observed in this study is a dummy variable, $Paptest_i$, defined by:

$$Paptest_i = \begin{cases} 1 & \text{if } Paptest_i^* > 0 \\ 0 & \text{otherwise.} \end{cases} \quad (5\text{-}3)$$

In Equation (5-2), the explanatory variable (I_i) is correlated with the error term (ε_{2i}), then we apply the concept of "instrumental variable" to solve the endogeneity. Broadly speaking, an instrumental variable is a variable that is uncorrelated with the error term but correlated with the explanatory variables. That is, in the first step, we find an instrumental variable (X_i) and estimate the healthcare information (I_i) in Equation (5-1). Then, we replace the health information (I_i) on the right-hand side of Equation (5-2) by their predicted value ($\hat{I}_i$) from Equation (5-1).

In the first stage, the reduced-form equation on healthcare information is estimated by the ordinary least squares (OLS) method. Then, in the second stage, Equation (5-2) is estimated by means of multivariate logistic regression analysis after the predicted value for health information is replaced; this is obtained using the reduced-form, two-stage estimation method suggested by Maddala (2004). The major characteristic of the econometric model is that in Equation (5-2) we treat healthcare information as an endogenous explanatory variable.

5.2.3 Principal Variables

Dependent variables

The first study within which an attempt was made to directly measure

healthcare information was provided by Kenkel (1990); in that study, respondents were asked to respond to a number of questions on individual health opinions. The measurement of healthcare information was provided by the responses to a set of symptoms relating to diabetes, heart disease, cancer and tuberculosis, with the measurement being based simply upon whether the respondents 'agreed' or 'disagreed' (Kenkel, 1990).

The approach developed by Kenkel is similarly applied in this chapter to undertake the measurement of healthcare information. Responses to a total of nine questions on information and knowledge about cervical cancer and Pap-smear testing services were collected in the HPKAP survey. We allocated a value of 1 if the answer was correct or known, a value of 0 if the answer was unknown, and a value of −1 for each incorrect answer. The *Health Information* dependent variable, defined in this study as I_i, is the sum of these nine responses reflecting the extent of the respondents' healthcare information on cervical cancer and Pap-smear testing. Another dependent variable, defined as the *Pap-smear test*, indicates whether or not a respondent had undergone cervical cancer screening within the past year. The *Pap-smear test* variable was dichotomous, with a score of 1 being allocated if the woman had undergone screening within the past year; otherwise 0.

Independent variables

Two regression equations, the determinants of healthcare information and the factors potentially influencing the decision to undergo Pap-smear testing, were used in our empirical analysis. In the exploration of the healthcare information factors (X_i), the explanatory variables applied comprised of (i) socio-demographic factors of the respondents, including age, individual monthly income, marital status, educational attainment and healthcare occupation; (ii) geographical factors, including residential location and urban/rural strata; and (iii) health behavior factors, including smoking and drinking. All of these variables have been provided by various theoretical or empirical models, providing guidance on estimating the acquisition of health information.

The *Age*, *Individual Monthly Income*, *Marital Status*, *Residential Location* and *Urban/Rural Strata* variables were also used in the decision to utilize cervical cancer screening (Y_i). Two additional important factors, a history of gynecological disease and whether or not advice notes had been received from the health authorities, were also included in the determinants of Pap-smear test utilization. Full details of the dependent and independent variables are provided in Table 5-1, along with their definitions.

<Table 5-1 is inserted about here>

The *Education* variable is excluded from Y_i because, as suggested by Kenkel (1990), the primary role of education in this context is through healthcare information; this is also consistent with the theoretical model of Grossman (1972). The *Health Behavior* (including smoking and drinking) and *Health Occupation* variables are also excluded from Y_i because, similar to case of the *Education* variable, respondents' occupation and health behavior are not regarded as having any direct influence on whether or not a respondent will undergo Pap-smear testing.

5.3. Results

The descriptive statistics of the variables are provided in Table 5-2, where the *Health Information* variable reflects the responses to nine questions, ranging from −4 (full misinformation) to 9 (full information). The mean of the *Health Information* variable in this sample was about 5.38, ranging between −2 and 9.

Over 50 per cent of the total study sample ($n = 9{,}106$) was aged between 30 and 49 years, whilst the mean age of the sample was approximately 44.2 years, with a standard deviation of 12.4 years. Approximately three-quarters of the study sample were married or were cohabiting with a partner. Table 5-2 also reveals that 43.09 per cent of the sample had reported that they had undergone a Pap-smear test within the past year, whilst around 36 per cent reported that they had received advice notes on

cervical cancer screening and Pap-smear testing from the health authorities.

<Table 5-2 is inserted about here>

The largest component of the sample, about 37 per cent, had graduated from primary school or below, with only 1.7 per cent of the total sample being engaged in a healthcare occupation. The majority of the respondents came from the Southern and Northern regions of Taiwan, with greater numbers of the women being located in the city regions than in villages and towns.

Details of the regression results on healthcare information and the utilization of cervical cancer screening are summarized in Table 5-3. The results of the OLS analyses on the determinants of healthcare information indicate that younger women had a significant and positive correlation with higher levels of healthcare information; this may be simply explained by those respondents with higher incomes having greater incentives to acquire healthcare information and knowledge on the merits of Pap-smear testing. We also found that married women generally tended to be better informed than those who were unmarried.

<Table 5-3 is inserted about here>

As anticipated, those with higher educational attainment and those working in healthcare occupations, such as doctors or nurses, were significantly more likely to acquire more healthcare information. However, it was very interesting to note that

whilst those living in the Southern regions were less informed about the merits of cervical cancer screening, those who were located in the Eastern regions tended to be better informed. As expected, current smokers or drinkers were also found to have significantly lower levels of healthcare information. As Table 5-3 reveals, after adjusting for other factors, women who were more informed were significantly more likely to undergo cervical cancer screening; this major finding suggests that healthcare information does play a crucial role in the decision by women to utilize Pap-smear testing.

The results also show that women who were aged between 25 and 29 years, unmarried, residing in the Southern regions and living in city areas had a significantly negative association with the utilization of Pap-smear testing. Finally, those women who had previously suffered from any type of gynecological disease and those who received advice notes from the health authorities also had a highly positive correlation with the utilization of Pap-smear testing.

5.4. Discussion and Conclusion

The primary aim of this chapter was to examine those factors associated with the determinants of healthcare information and the role of healthcare information in the demand for cervical cancer screening through Pap-smear testing. Generally, we find

that consumers who were more informed had a better evaluation of the marginal product of medical healthcare; thus, the effect of information on medical healthcare demand is regarded as being positive (Kenkel, 1990). Similarly, the healthcare information gained by consumers is also seen as playing a crucial role in the determinants of demand for preventive healthcare services.

Although the empirical results obtained by some of the prior studies have confirmed that educational level has a significant positive effect on the utilization of Pap-smear testing, these studies invariably failed to undertake any direct measurement of healthcare information, and indeed, they simply used the education variable to represent the level of healthcare information.

We believe that the two-stage empirical method adopted for use in this study succeeds in making this the first study of its kind to attempt to explore the association between healthcare information and the utilization of the Pap-smear testing. Our empirical results are in line with the findings of Kenkel (1990) and Hsieh and Lin (1997).

We find that younger respondents, those who are married, with higher individual monthly incomes, better education and working in a healthcare field have a significant correlation with more healthcare information. This implies that the payoff term for younger individuals is longer, that healthcare information is a normal good, and that

the opportunity costs of receiving information are lower for highly educated individuals and those in healthcare occupations. As a result, these individuals have greater incentives to gather and process healthcare information. Conversely, as suggested by Kenkel (1990) and Hsieh and Lin (1997) those individuals who engage in smoking or drinking seem to pay less attention to their general health, and hence have lower incentives to acquire healthcare information.

We further find that women living in the Southern regions are less informed than those living in the Northern region, the most highly developed and populated area of Taiwan. This finding suggests that the Northern region has more extensive medical facilities, such that it is easier to obtain healthcare information. One striking finding, however, is that women living in the Eastern regions of Taiwan are better informed than those living in the Northern region. The probable major explanation for this is the establishment by the government authorities of a series of public education policies, involving leaflets and posters on Pap-smear testing, within the mountainous, sparsely populated Eastern areas of Taiwan (Public Health in Taiwan [in Chinese]).

The major finding of this chapter is that after adjusting for other factors, healthcare information is an important factor contributing to the utilization of cervical cancer screening; that is, better informed women are more likely to undergo Pap-smear testing. Essentially, those respondents who were better informed also

tended to be more health conscious and had greater awareness of the importance of cervical cancer screening, whereas women lacking knowledge and information on the subject would have less incentive to undergo such screening. Healthcare information therefore has a significant and positive correlation with cervical cancer screening check-ups.

In 2002, for every 100,000 women in Taiwan, the morbidity for cervical cancer was 51.88, whilst the mortality rate stood at 8.53, reflecting the highest incidence rate and fifth highest cause of death from all female malignancies (Taiwan Cancer Registry [in Chinese]). In July 1995, in an attempt to promote better utilization of Pap-smear testing, free annual cervical cancer screening was provided under the NHI for all women aged ≥ 30 years. Thereafter, in their efforts to raise accessibility to Pap-smear testing, more than 90 per cent of all eligible obstetric and gynecological hospitals and clinics subsequently signed agreements with the NHI for the provision of these services. Thus, the government authorities' attempts to eliminate financial barriers so as to enhance accessibility to Pap-smear testing resulted in the testing rate under the NHI rising to 30-40 per cent between 1996 and 2002; however, this testing rate still remains much lower than in the developed countries, where 70-80 per cent usage rates are being reported.

Although educational attainment has been shown to have a significantly positive

correlation with cervical cancer screening utilization, it is very difficult to raise the level of education for adult women (over 20 years of age); it is, nevertheless, much easier to promote higher levels of healthcare information. Our empirical results confirm that healthcare information has a crucial role in raising both awareness and the utilization of Pap-smear testing in Taiwan. Thus, it is of significant importance that in addition to free insurance coverage under the NHI for the provision of annual Pap-smear testing for women aged ≥30, and balancing the access to Pap-smear testing throughout the various regions, the health authorities should also aim to strengthen the knowledge and information on cervical cancer screening and Pap-smear testing for those who have less knowledge on the subject as a whole.

If we are to achieve high levels of utilization of Pap-smear testing, we cannot simply rely upon the free screening program provided by the NHI and the various regional promotional strategies; more effort will clearly be required to raise information levels amongst older, lower income and unmarried females in non-healthcare occupation, who are inherently less informed.

Whilst the slogan 'Pap-smear test takes only six minutes of your time, and yet protects your whole life' has been appearing on Taiwanese TVs since November 1996, the lower screening rate within this Chinese society may result from embarrassment amongst Taiwanese women with regard to taking the test, particularly where the

physician carrying out the test is male.

Such an embarrassment factor would cause women to be less informed and would also lead to them ignoring the importance of cervical cancer screening, hence lowering the likelihood of them undergoing a Pap-smear test. In order to overcome such embarrassment and promote the utilization of screening check-ups, the health authorities could try to arrange for female physicians to undertake the screening tests, whilst important work for the future would clearly be to try to promote 'personal sampling collection at home'.

The major inherent limitation of this chapter is that the questionnaire began in October 2002, after the launch of the NHI program, hence resulting in all of the pre-NHI data being unavailable to us. We cannot, therefore, explore any comparison of the impact of healthcare information on cervical cancer check-ups in the pre-NHI and NHI implementation period. Nevertheless, this empirical study should prove useful in providing guidelines for health authorities in their attempts to achieve high levels of cervical cancer screening, over and above the free screening provided by the NHI program and the elimination of the barriers to access to screening in the more remote areas.

Table 5-1: Definitions of dependent and independent variables

Variable	Definition
Dependent variables	
Health Information	Sum of scores for 9 questions about the information and knowledge associated with cervical cancer and Pap-smear test
Pap smear test	Dummy variable=1 if woman accept Pap smear test, other=0
Independent variables	
Socio-demographic factors	
Age	
25-29	Dummy variable=1 if woman's age in this range, other=0
30-39	Dummy variable=1 if woman's age in this range, other=0
40-49	Dummy variable=1 if woman's age in this range, other=0
50-59	Dummy variable=1 if woman's age in this range, other=0
60-69	（Woman's age in this range is the reference category）
Individual monthly income	Woman's income including salary, rent revenue, capital gain and pension
NT $ 0-4,999	（Woman's income is 0 is the reference category）
NT $ 5,000-19,999	Dummy variable=1 if woman's income in this range, other=0
NT $ 20,000-39,999	Dummy variable=1 if woman's income in this range, other=0
NT $ ≥ 40,000	Dummy variable=1 if woman's income in this range, other=0
Marital status	Dummy variable=1 if woman have married or live with cohabitant, other=0
Education	
Primary school and below	（Primary school and below is the reference category）
Junior high	Dummy variable=1 if woman finished Junior high school, other=0
Senior high	Dummy variable=1 if woman finished Senior high school, other=0
College and above	Dummy variable=1 if woman finished College and above, other=0
Health occupation	Dummy variable=1 if woman in health occupation such as doctor, dentist, pharmacist, nurse, medical technician or optician, other=0

Variable	Definition
Geographic factors	
Residential locations	
North	Dummy variable=1 if the household is located in: Taipei Hsien, Keelung city, Ilan Hsien, Taoyuan Hsien, Hsinchu Hsien, Miaoli Hsien, Taipei Municipality（North is the reference category）
Center	Dummy variable=1 if the household is located in: Taichung Hsien, Changhwa Hsien, Nantou Hsien, Yunlin Hsien, Taichung City
South	Dummy variable=1 if the household is located in: Chiayi Hsien ,Tainan Hsien, Kaohsiung Hsien, Pingtung Hsien, Kaohsiung Municipality, Chiayi City, Tainan City
East	Dummy variable=1 if the household is located in: Taitung Hsien, Hwalien Hsien, Penghu Hsien
Urban/rural strata	
City	Dummy variable=1 if woman lives in the megalopolis, other=0
Village/Town	（Woman lives in the village or town is the reference category）
Health behavior factors	
Smoking	Dummy variable=1 if woman smokes cigarettes currently, other=0
Drinking	Dummy variable=1 if woman drinks alcohol currently, other=0
Gynecologic disease	Dummy variable=1 if woman have gynecologic disease, other=0
Advice note	Dummy variable=1 if woman have received advice note of Pap-smear test service from health authorities, other=0

Table 5-2: Descriptive statistics of the variables (n=9,106)

Variables	Mean	Standard Deviation	Minimum	Maximum
Dependent variables				
Health Information	5.3755	2.7463	-2	9
Pap smear test	0.4309	0.4952	0	1
Independent variables				
Socio-demographic factors				
Age	44.2316	12.4239	25	69
25-29	0.1338	0.3404	0	1
30-39	0.2717	0.4449	0	1
40-49	0.2577	0.4374	0	1
50-59	0.1783	0.3828	0	1
60-69	0.1585	0.3652	0	1
Individual monthly income				
NT $ 0-4,999	0.3342	0.4717	0	1
NT $ 5,000-19,999	0.2809	0.4495	0	1
NT $ 20,000-39,999	0.2517	0.4340	0	1
NT $ ≥ 40,000	0.1332	0.3398	0	1
Marital status (Married)	0.7583	0.4281	0	1
Education				
Primary school and below	0.3671	0.4821	0	1
Junior high	0.1517	0.3587	0	1
Senior high	0.2708	0.4444	0	1
College and above	0.2104	0.4076	0	1
Health occupation	0.0168	0.1285	0	1
Geographic factors				
Residential locations				
North	0.3002	0.4584	0	1
Center	0.2495	0.4328	0	1
South	0.3389	0.4734	0	1
East	0.1114	0.3146	0	1
Urban/rural strata				
City	0.5768	0.4941	0	1
Health behavior factors				
Smoking	0.0502	0.2183	0	1
Drinking	0.2297	0.4207	0	1
Gynecologic disease	0.0584	0.2346	0	1
Advice note	0.3553	0.4786	0	1

Table 5-3: Regression analyses for information and decisions of Pap-smear test acceptance

Variables	Health Information		Pap-smear test	
	Coefficient	P -value	Odds ratio	P -value
Health Information	--	--	1.136	＜0.0001
Socio-demographic factors				
Age				
25-29	1.392	＜0.0001	0.499	＜0.0001
30-39	1.810	＜0.0001	1.020	0.864
40-49	1.706	＜0.0001	1.099	0.355
50-59	1.198	＜0.0001	1.121	0.194
60-69	reference category		reference category	
Individual monthly income				
NT $ 0-4,999	reference category		reference category	
NT $ 5,000-19,999	0.182	0.002	1.001	0.985
NT $ 20,000-39,999	0.351	＜0.0001	1.042	0.541
NT $ ≥ 40,000	0.279	0.001	1.104	0.225
Marital status (Married)	0.772	＜0.0001	2.423	＜0.0001
Education				
Primary school and below	reference category		reference category	
Junior high	1.696	＜0.0001	--	--
Senior high	2.369	＜0.0001	--	--
College and above	2.540	＜0.0001	--	--
Health occupation	1.328	＜0.0001	--	--
Geographic factors				
Residential locations				
North	reference category		reference category	
Center	0.030	0.653	0.891	0.068
South	-0.124	0.036	0.798	＜0.0001
East	0.305	＜0.0001	1.021	0.794
Urban/rural strata				
City	0.136	0.007	0.811	＜0.0001
Health behavior factors				
Smoking	-0.555	＜0.0001	--	--
Drinking	-0.140	0.013	--	--
Gynecologic disease	--	--	2.356	＜0.0001
Advice note	--	--	1.260	＜0.0001
Constant	1.809	＜0.0001		
Number of observations	9,106		9,106	
R^2	0.3704		--	
Log-Likelihood	--		-5830.1909	
LR X^2	--		788.86	
Prob＞X^2	--		0.00001	
Pseudo R^2	--		0.0634	