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Korean American Women's Preventive Health Care Practices: Stratified Samples in California, U.S.

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Abstract

Using data from a larger study, we explored the characteristics of preventive health care practices (influenza vaccination, mammogram, and pap test) among a representative sample of 1786 Korean adult American women residing in California by telephone. Three preventive health care practices were related to the goals set by *Healthy People 2010*. Participants with no education in the U.S., who were born in Korea, resided in the U.S. longer, and had a primary care provider were more likely than others to reach these goals. Our findings indicate that a behavioral model was suitable to explain the three preventive health care practices.

Background

The foreign born population was 36,749,000 (15,475,000 citizens and 21,274,000 non-citizens) in 2009 as estimated by the U.S. citizens, reflecting a substantial portion of the American population who had immigrated (U.S. Census, 2009). Movement of world populations is also high (Annan, 2006) during recent years. Migrant populations are often at risk due to difficulties in accommodating new cultures, new environments, and conditions under which migration occurs, especially when health risk is involved. This is particularly the case when sending and receiving societies differ in emphases on preventive measures and access to care.

While regular preventive health care practices are necessary to reduce mortality and morbidity, overall preventive care coverage in the U.S. fails to meet the goals of *Healthy People 2010* and reveals ethnic disparities (Centers for Disease Control and Prevention (CDC), 1999; Task force on Community Preventive Services, 2000). In 2009, the coverage rate of seasonal influenza vaccination averaged 29% to 45% for adults aged 18 to 64 and 69% for adults aged 65+ in the U.S., and nearly 36,000 adults died from influenza that was preventable through vaccination (CDC, 2010). The coverage rates were far from the target goals of immunization in *Healthy People 2010* (Objective 14-29) - 60% for all adults aged 18-64 years and 90% for older adults 65+ (U.S. DHHS, 2000). Very few reports provide specific information about influenza vaccination among minority groups of Hispanic or Asian persons, and no research targeting a sub-minority group, Korean Americans (KAs),

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was found in our search of health literature (Chen, Diamant, Pourat, & Kagawa-Singer, 2005; U.S. DHHS, 2006).

Cancer is the leading cause of death among Asian Americans (U.S. DHHS, 2008). Korean Americans also have the highest prevalence of breast and cervical cancers among other ethnic groups (Gomez et al., 2010a; Gomez et al., 2010b; Wang, Carreon, Gomez, & Devesa, 2010). For instance, KA women have 1.4 times the prevalence of breast cancer as Japanese Americans, and KA women born in other countries have a higher prevalence of breast cancer than those born in the U.S (Gomez et al., 2010a; Gomez et al., 2010b).

KA women have lower breast cancer screening rate, higher breast cancer prevalence, and lower survival rates than other ethnic groups. In a sample of 384 KA women, 32% reported having “never been screened by mammography,” the highest rate among Asian Americans, and 42% received a mammography screen (Ma, Shive, Wang, & Tan, 2009). The screening rate was far below the U.S. overall rate of 68% at age 40+ (Maxwell, Jo, Chin, Lee, & Bastani, 2008; U.S. DHHS, 2010). Furthermore, the characteristics of cancer screening were not clearly identified. From the California Health Interview Survey (CHIS), the cancer screening rate among KA women aged 40+ (N = 252) decreased with increasing age (Choi et al., 2010), although another study (N = 100) reported a contrary result, more frequent screening with older age (Lee, Kim, & Han, 2009).

Cervical cancer prevalence among KA women also was higher at 11.9 per 100,000 woman-years when age-adjusted to the 2000 U.S. standard population than those among non-Hispanic white women (7.3 per 100,000) (Wang et al., 2010). From 32% to 50% of KA women aged 18+ had a pap screening test during the past two years one or two years, (Juon, Choi, & Kim, 2000; Ma et al., 2009), while 36% reported that they never been screened on this test (Ma et al., 2009). The KA women's compliance rate for pap screening was the lowest among all other ethnic women (non-Hispanic white, 74.9%, non-Hispanic black, 80.0%, Hispanic/Latino, 75.4%, and American Indian/Alaska Native: 69.4%). Barriers to the compliance of these preventive health care practices among KA women included old age, living in the U.S. less than 15 years, difficulties with English, and being married (Ma et al., 2009; Maxwell, Bastani, & Warda, 2000), although other studies failed to report similar results (Lin et al., 2009).

According to these reports, KA women's screening practices are somewhat confusing and may be less compliant than those in other ethnic groups and those who have lived longer in the United States. Indeed, most KAs constitute a rapidly growing minority group and mostly have resided in American society only during the last few decades (Reeves & Bennett, 2004). Approximately one million KAs reside in the U.S., and 72 percent immigrated to the U.S. since the 1980s. About 90 percent were born abroad, mostly in Korea (Narayan et al., 2010). As shown in KA's recent immigrant history and faced with disparities in preventive health care services, immigration constitutes a challenge for KAs. Difficulties with acculturation likely lead to multiple health risks (Lassetter & Callister, 2009). This study describes compliance with health screening practices and among KA based on a large, representative probability sample of adults in California of Korean descent.

Although prior studies provide some useful information concerning KA women's preventive screening behavior, most studies have been based on relatively small, convenience samples of 100 to 384 participants (Lee, Fogg, & Sadler, 2006; Lee et al., 2009; Ma et al., 2009; Ma et al., 2009; Maty, Leung, Lau, & Kim, 2010; Maxwell et al., 2000) which makes external validity problematic. Among studies only the California Health Interview Survey used a population-based sample of 629 KA (Lin et al., 2009).

The conceptual framework of our study was derived from a behavioral model of health service use (Andersen, 1995; Andersen, 2008) to explain health screening behaviors among KA women. The model consists of four constructs: 1) Predisposing; 2) enabling factors; 3) perceived need; and 4) health behaviors (preventive health care practices). Predisposing involves the social situational variables of age, education in the U.S, marital status, employment, religion, place of birth (U.S. or Korea), years in the U.S., and acculturation. Enabling factors include having a primary care provider, perceived need involves self-reported health and general health concern, and health behaviors include preventive health care practices such as influenza vaccination, mammogram and pap test.

The model assumes that persons who are predisposed to engage in preventive actions due to environmental and personal cues, who are enabled in doing so by access to a primary health care provider, and who realize the need for preventive behaviors will take action to engage in preventive care practices, *e.g.*, receiving inoculations and physical examinations.

In this study, all four components of the behavioral model were hypothesized to explain KA women's preventive health care practices. In addition, an acculturation component was added as a predisposing factor since KA women have lived a relatively brief time in the U.S. and most of them were born in Korea, doubtlessly influencing their preventive health care practices. Acculturation was conceptualized by the degree to which maintenance of culture of the source nation (Korea) is juxtaposed against contact with and participation in the host environment. Participants in this study were classified into four groups: 1) Assimilation; 2) integration; 3) marginalization; and 4) separation— following Berry (1997). Assimilation is defined as individuals do not wish to maintain their originated culture/language and seek daily interaction with other cultures, and integration as trying to maintain the original culture while continuing daily interaction with larger society. Marginalization is defined as individuals who avoid their original culture but have relationships with their own cultural people, and separation is defined by trying to keep their original culture and continuing to interact with people. In the model, we hypothesized that KA women high on assimilation or integration levels of acculturation will have better health screening practices due to greater opportunity to contact the present social system (Ma et al., 2009).

The purposes of this study were to 1) examine the prevalence of each preventive health care practice behavior (influenza vaccination, mammogram, and pap smear) among KA women residing in California, 2) examine the factors influencing the compliance of each preventive health care practices under the behavioral model, and 3) examine the factors influencing the combined preventive health care practices.

Methods

Sample

This study was based on a secondary analysis of two independent, representative surveys of Korean-Americans with interviewing conducted during 2006-2007 and 2005-2006 and combined to increase sample size (N=1786). Both surveys were conducted using independent probability samples of adults (18 years or over) of Korean descent who resided in households with residential telephones in California and represented all adult women of Korean descent in California. The sample was drawn randomly from a lists purchased from a commercial firm which was constructed from telephone numbers from listed directories, membership lists, warrantee lists, and other sources who had the 300 most common Korean surnames. Stratified by gender and self-reported Korean descent, participants who had the most recent birthdays were interviewed. Persons who spoke neither Korean nor English were excluded as were persons who had first names commonly used by other Asian cultures but not by Koreans. Those with Anglicized first names were kept in the sample. Screening measures were collected only from females. The Institutional Review Board at San Diego State University approved study procedures.

Closely supervised bilingual (Korean and English) professional interviewers conducted all interviews by telephone. Up to eight attempts were made to complete interviews at different times of the day and different days of the week. A final screen to include only persons of Korean descent was used at the time of the interview. The cooperation rate (percent of eligible participants contacted who completed interviews for the first survey was about 85% and for the second survey about 65%. About 86% of all interviews were conducted in Korean. The difference in cooperation rates was due to greater sensitivity of content in the second survey. Analysis showed that the samples closely represented the adult population of women of Korean descent in the 2000 U.S. census.

Measures

The dependent variables for this study were preventive health care practices, including influenza vaccination, and mammography. Verbatim wording, responses, coding, and scaling for these and other variables are reported in the measurement appendix. Independent variables included acculturation, the presence, gender, and nationality of a primary care provider, reported health status and health concern of participants, and self reported demographic items including age, education, family income, marital status, religion, birth place, and years living in the U.S.

Analysis

SPSS (version 16.0) was used for data processing and statistical analysis (SPSS Chicago, Illinois, 2009). Bivariate analysis was first executed and then bivariate logistic regression was applied to evaluate the differences in prevalence among groups. Multivariable logistic regression was used to clarify the behavioral bases for each preventive health care service, and the preventive health care services were summed to provide a summary measure ranging 0 to 3 and then analyzed using least squares multivariable regression on the behavioral

variables to clarify the behavioral bases of general preventive behaviors. Statistical significance was set at .05.

Results

Mean age of participants was 45.0 (SD=16.0) years, 60.7% had completed no formal education in the U.S, 71.7% were married, 43.3% had a family income less than \$50,000 a year, and 24.6% had a full time job (Table 1). About 88.3% reported their religion to be Protestant or Catholic, 43.6% were categorized as acculturated, most (94.1%) were born in Korea, 36.1% had lived in the U.S. less than 10 years, and 55.7% spoke mostly Korean in their daily lives. Finally, 45.3% reported no health care provider, 59.6% rated their health as good or very good, and 87.8% reported concern much about their health.

Compliance to the Preventive Health Care Practices

About 50% among participants aged 18-59 years while 90% among those aged 60+ reported having received influenza vaccination during the prior year. About 79% had at least one mammography and 85% had at least one pap test. Women who were older, not married, Christian, and who had a primary doctor, poor self-reported health, and a great deal of concern their health were statistically significantly more likely to have had the influenza vaccine than others. Women who were older than 40 years, had no U.S. education, were employed, and who reported a Christian religious faith, were less acculturated. Those who had lived longer in the U.S were also more likely to have had mammography and pap tests than the others (Table 2).

Characteristics of each preventive health care practice

Multivariable logistic regression was used to assess the combined influence of predictors and the partial influence of each predictor on the combined preventive health care measure (influenza vaccination, pap test, and mammogram) after controlling for other predictors. In explaining KA women's influenza vaccination practice, two variables (age and length of residency in the U.S) among predisposing factors and one variable of perceived needs in the Behavioral Model were statistically significant, but the enabling factor (e.g. having a primary care provider) did not influence the influenza vaccination practices. KA women who are younger than 40 years old (OR = .150, $P < .001$), and 40-59 years old (OR = .123, $P < .001$) were less likely to have been immunized against the influenza than those aged 60+, and those who were not concerned about their health (OR= .691, $P < .05$) were less likely to have been immunized against the influenza (Table 3). Those with longer residency (OR=1.02, $P < .05$) were more likely to have been vaccinated.

On the other hand, mammogram and pap test screening behaviors were explained by most predisposing factors and enabling factors in the behavioral model, but not by perceived need. Women who were born in Korea (OR = 3.94, $P < .001$), longer lived in the U.S. (OR = 1.04, $P < .01$), had no U.S. education (OR = 2.89, $P < .001$) or less U.S. education (OR = 1.84, $P < .05$) had a higher rate of mammogram screening than others, while those who were younger than 40 (OR = .306, $P < .001$), unmarried (OR = .234, $P < .001$), unemployed (OR = 0.150, $P < .001$), and who did not have a primary health care provider (OR = .484, $P < .$

01) were less likely to have had mammogram for breast cancer screening (Table 3). The predictors significantly reduced deviance for each model ($P < .001$). .

Study participants who had no education in the U.S. (OR = 2.05, $P < .05$), who were born in Korea (OR = 2.28, $P < .05$), and who lived longer in the U.S. (OR = 1.06, $P < .001$) were more likely to report having a pap test than others. KA women who were unmarried (OR = .132, $P < .001$), unemployed (OR = .165, $P < .01$), did not have a primary provider (OR = .379, $P < .01$), and who reported having a Korean primary care provider (OR = .541, $P < .05$) were less likely to report having a pap test than others. When other variables were controlled, religion and acculturation among the predisposing factor and self-reported health status in the perceived need in the model were not statistically significantly related to the summary measure of health screening practices.

Factors influencing the preventive health care practices

When three preventive health care practices were combined, all three constructs (predisposing, enabling, and perceived need) in the behavioral model were statistically significantly related to preventive health care practices ($P < .05$). The predisposing factors of age, marital status, birth place, and years of residency in the U.S. may have influenced preventive health care practices. Older KA women, those who were married, who were born in Korea, who had longer U.S. residency, had a primary care provider, and who felt their health was poor reported more preventive health care practices than the counter parts ($P < .05$). However, education in the U.S, religion, acculturation level, and general health concern did not appear to influence the person's preventive health care practices once other variables were controlled ($P > .05$). Of the total variance of preventive health care practices, the three factors explained an adjusted R^2 in preventive practices of 23.7% in the model (Table 4).

Discussion

Participants with no education in the U.S., who were born in Korea, resided in the U.S. longer, and had a primary care provider were more likely than others to receive preventive care. Our data show that KA women in California as a group are somewhat more likely to follow preventive health care practices than are reported in the general population as well as other reports about KA women in the U.S. Compared to the CDC (2010) report of rates for influenza vaccination in 2009 (29% to 46% for adults aged 18 -64 years and 69.3% for adults aged 65 years) (CDC, 2010), our findings show higher proportions receiving flu vaccinations and also reach the target presented in *Healthy People 2010* as well (US DHHS, 2000). Although this result is consistent with general findings concerning Asian American women's influenza vaccination in California and nation wide (Chen et al., 2005; US DHHS, 2006), it is noted that our findings add a fundamental information about influenza vaccinations among a specific Asian group.

The data also show that rates of women's mammography, and pap tests, are higher than previous reports (Ma et al., 2009) and above the U.S. overall screening rate of 68% at age 40+ (Maxwell et al., 2008; US DHHS, 2010). Rates of pap test were also higher than other studies (Juon et al., 2000; Ma et al., 2009). Although more than half of KA women were unemployed and did not have a primary care provider, they appear to be aware of the need

for cancer screening and have obtained it. KA women may have their own strong social network, because our findings show that more than 75% of participants reported having a religion such as Protestant, Catholic, Buddhism, *etc.*, other research demonstrates a strong connection between religious attendance and diminished health risk (Hofstetter et al, 2010; Ayers et al, 2009; Kang Sim, et al., 2008), and Christian church attendees may have received higher screening in mammogram and pap tests than others in the sample (Hill *et al.*, 2006), although the comparison was not statistically significant.

Variation was uncovered in what is related to receiving influenza vaccination, mammography, and pap tests, and may be a function of other behavioral variables. In the multivariate analyses, persons receiving influenza vaccination were more likely to be older, borne in Korea, and having lived in the U.S. longer were more likely to receive influenza shots. Younger persons, those educated only in Korea, unmarried, not working outside the home, borne in Korea, and those living longer in the U.S. were more likely to report having had a mammogram. With the exception of age which was unrelated, the multivariate associations with reporting a Pap test was identical to that for mammograms. While our data do not permit more extensive analysis to explain the above profile, it is important that Korea has a comprehensive public health care program that would cover influenza shots as well as other services, and at least some Koreans with more serious illness travel to Korea for medical services.

Not having a primary care provider was association with reports of having had mammograms and Pap tests, but not influenza shots among enabling factors. Health concern was related only to influenza shots among the sample, with the concerned more likely to have reported shots. It is interesting that religious participation, acculturation, and reported health status were unrelated to each type of screening once other variables were controlled.

This suggests that KA women may less seriously consider influenza vaccination as a necessary health practice compared to mammogram or pap tests. It should be noted that influenza shots are widely available through pharmacies, some stores, and public health centers, so receiving a shot is convenient and does not require a physician's prescription. Strategies for interventions to increase influenza vaccination in the KA community, targeted to those who are new in the U.S. and aged 40 – 60 years, should be developed. Study findings are interesting in two ways with regard to mammogram or pap test: First, KA women with a job, longer time in the U.S., and who have a primary care provider indicated more frequent screening, probably because those conditions are easily accessible. However, our findings indicated that those who were born in Korea and who had no education in the U.S. showed odds two to three times higher screening rates of mammogram and pap testing than the respective odds of those without these attributes. This result is surprising because these variables could also work as barriers for people trying to adapt to a new society (Ma et al., 2009; Maxwell, Bastani, & Warda, 2000). This result may be explained by the strong association between testing and age. Perhaps because most persons over 60 years of age and who were not born and not educated in the U.S. were more concerned about their health than others, they sought more health screening. Further study applying an analytic method identifying direct and indirect associations among the variables might clarify this issue.

These findings show that KA women without a primary care provider were significantly less likely to have had screening (mammogram and pap testing) than others. It is also noted that KA women with a Korean primary care provider were less likely than those with non-Korean primary care provider to be screened. This may be a consequence of women who have a Korean primary care provider use the provider to function only for urgent care rather than regular check-ups. Research to identify the roles of Korean primary care providers and the mechanisms by which Korean women receive information about health should clarify this suggestion.

Limitations

This study was based on a secondary analysis drawn from studies designed for other purposes, so we did not have access to variables that would have further clarified associations. Information, such as having health insurance and doctor's recommendations concerning health care screening practices, were not available. Self reports in the study may have produced some error despite interviewing in Korean or English according to participant preference. Also, we do not know the frequency and character of groups of Korean women who return to Korea for no cost medical care or who visit relatives in Korea and happen to go through screening on those occasions.

Conclusion

Portions of the behavioral model helped to explain preventive care in this study. KA women's preventive screening behaviors contrast with some previous conclusions that KA women's health screening practices were lower than those of overall population and Asian-American subgroups, although our data indicated that KA women's screening behaviors attain the goals of *Healthy People 2010*. Still, variation was found in who received screening.

Interventions should be targeted particularly to subgroups that do not meet the goals of *Healthy People 2010*, paying particular attention to behaviorally distinct subgroups. Information and educational programs, especially for younger groups, reaching out to unmarried persons, those working outside the home would be helpful. Recruiting primary care providers to discuss health screening with patients could be conducted with little or no cost. Physicians and public health professionals should work to sensitize Korean women to consider health risks and the kinds of testing that may avoid cataclysmic conditions later.

Mammogram and pep test screening practices were strongly related to the factors in behavioral model, while influenza vaccination practice was influenced by a few factors (i.e. age, length of residency years in the U.S., and general health concern) in the model. Overall health screening practices of KA women were influenced most strongly by predisposing factors followed by an enabling factor and perceived need. Future studies should include identifying the mechanism of KA women's health screening behaviors (e.g., how and where to get the information) and screening related care.

On an international scale, preventive care is no less important than it is in the United States. Studies that describe more precisely the processes involved in access to preventive medicine

may vary to some extent, but we argue that the behavioral model in this study provides a paradigm for reducing health risk due to common risks in all societies. While the precise nature of the behavioral model may vary by society, interventions may differ depending on cultural practices and specific situations, framing analyses around this paradigm should prove helpful in understanding screening in different societies. Targeting underserved women will enhance national health and reduce costs of care. This is particularly important to the United States due to the large number of immigrants to this nation, but it is also important to all societies that receive immigrant populations.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Characteristics of Korean American Women (N = 1796)

	% (n)
Age	
< 40	41.1
40-59	39.8
60+	19.2 (1796)
Education in the U.S.	
None	60.7
5 years	18.8
> 5 years	20.5 (1771)
Marital status	
Single	16.4
Married	71.7
Widowed	9.0
Divorced/Separated	2.9
Cohabiting	.1 (1784)
Income	
\$50,000	43.3
> \$50,000	56.7 (728)
Employment	
None	63.9
Part time	11.4
Full time	24.6 (629)
Religion	
Protestant	76.0
Catholic	12.3
Others	11.8 (1412)
Acculturation	
Assimilation	6.4
Integration	37.2
Marginalization	0.7
Separation	55.6 (1744)
Birth place	
Korea	94.1
Other	5.9 (1795)
Residency in U.S.	
10 years	36.1
> 10 years	63.9 (728)
Speaking	
Mostly Korean	55.7
English	44.3 (1793)

	% (n)
Prefer to speak	
Korean	82.1
English	17.9 (1796)
Primary care provider	
None	45.3
Korean	38.1
Non-Korean	16.6 (1796)
Self-reported health	
Very Good	19.1
Good	40.5
Fair	32.1
Poor/Very Poor	8.3 (1795)
Health Concern	
Not at all	1.2
Not very	10.9
Concerned	49.7
Very concerned	38.2 (1793)

Note. ^a: Numbers in cells are the percentages of each category in the sample.

Table 2Prevalence of Preventive Health Care Practices^a

	<i>Inf Vac (%)</i>	<i>Mammo (%)</i>	<i>Pap Test (%)</i>
Overall	58.7	79.0	85.1
Age (years)			
< 40	52.9 ^{***}	59.7 ^{***}	74.6 ^{***}
40-59	49.8	92.6	94.7
60+	90.0	87.1	95.0
Education in the U.S.			
None	59.2	87.1 ^{***}	89.7 ^{***}
5 years	56.8	78.9	83.5
> 5 years	58.6	52.2	71.8
Marital status			
Not married	66.3 ^{***}	54.5 ^{***}	61.4 ^{***}
Married	55.6	87.4	93.2
Employment			
No	59.4	76.8 ^{***}	83.3 ^{***}
Employed	53.8	96.1	97.9
Religion			
Others	53.9 ^{**}	71.6 ^{***}	81.3 ^{**}
Protestant/Catholic	60.8	82.4	86.8
Acculturation			
Low	59.7	84.6 ^{***}	88.0 ^{***}
High	57.5	72.6	81.5
Birth place			
Korea	58.6	81.7 ^{***}	86.6 ^{***}
Other	60.0	27.2	58.0
Years in U.S.			
10 years	50.8 ^{**}	74.2 ^{**}	79.6 ^{***}
>10 years	63.0	81.4	87.9
Primary care provider (PCP)			
No PCP	54.9 ^{**}	75.2 ^{***}	81.0 ^{**}
Korean PCP	62.8	84.1	87.7
Non-Korean PCP	59.4	77.0	89.5
Self-reported health			
Fair/Poor	63.1 ^{**}	84.2 ^{***}	87.6 [*]
Very Good/Good	55.8	75.2	83.3
Health Concern			
Not concern	46.0 ^{***}	69.6 ^{***}	79.9 [*]

	<i>Inf Vac (%)</i>	<i>Mammo (%)</i>	<i>Pap Test (%)</i>
Very concern	60.4	80.3	85.7

Note. Inf vac: Influenza vaccination; Mommo: Mammogram.

^aNumbers in the cells are percentages who reported having the respective preventive health tests.

* was used to signify $p < 0.05$

** $p < 0.01$

*** $p < 0.001$ for each bivariable association using χ^2 .

Table 3Multivariate Logistic Regression of Compliance of Health Screening Practice on Selected Predictors^a

	Influenza Vaccination			Mammogram			Pap Test		
	OR	95% CI		OR	95% CI		OR	95% CI	
		LL	UL		LL	UL		LL	UL
Predisposing factors									
Age (years)									
< 40	.150	.091	.246 [‡]	.306	.164	.570 [‡]	.581	.294	1.15
40-59	.123	.080	.192 [‡]	.949	.538	1.67	1.17	.624	2.20
Age 60+	1.00			1.00			1.00		
Education in the U.S									
None	.803	.551	1.17	2.89	1.70	4.91 [‡]	2.05	1.14	3.83*
5 years	.941	.646	1.37	1.84	1.09	3.10*	1.32	.732	2.38
> 5 years	1.00			1.00			1.00		
Marital status									
Not married	.998	.745	1.34	.234	.162	.338 [‡]	.132	.087	.201 [‡]
Married	1.00			1.00			1.00		
Employment									
Not employed	1.16	.847	1.59	.150	.061	.366 [‡]	.165	.058	.475 [‡]
Employed	1.00			1.00			1.00		
Religion									
Protestant/Catholic	.873	.695	1.09	1.109	.805	1.53	1.305	.911	1.87
No or Other	1.00			1.00			1.00		
Place of born									
Korea born	1.02	.619	1.69	3.94	1.93	8.03 [‡]	2.28	1.16	4.48*
Other	1.00			1.00			1.00		
Years in the U.S.	1.02	1.00	1.03*	1.04	1.01	1.06 [‡]	1.06	1.03	1.08 [‡]
Acculturation									
Low	.938	.728	1.21	.728	.493	1.08	.772	.493	1.21
High	1.00			1.00			1.00		
Enabling factor									
Primary care provider (PCP)									
No PCP	.770	.565	1.05	.484	.305	.769 [‡]	.379	.219	.654 [‡]
Korean PCP	1.05	.766	1.44	.775	.476	1.26	.541	.305	.957*
Non-Korean PCP	1.00			1.00			1.00		
Perceived need									
Self-reported health									
Good/excellent	.921	.739	1.15	.810	.590	1.11	.807	.567	1.15
Fair/poor	1.00			1.00			1.00		
General health concern									

	Influenza Vaccination			Mammogram			Pap Test		
	OR	95% CI		OR	95% CI		OR	95% CI	
		LL	UL		LL	UL		LL	UL
Not concern	.691	.506	.944*	1.04	.662	1.64	1.17	.709	1.94
Concern	1.00			1.00			1.00		
Model significance	X ² ₍₁₄₎ = 218.76, P< .001			X ² ₍₁₄₎ = 408.12, P< .001			X ² ₍₁₄₎ = 343.18, P< .001		
Model accuracy rate (%)	63.2			84.9			88.4		

Note.

CI: Confidence Interval; LL: Lower level; UL: Upper level.

^aNumbers in cells are odds ratios and 95% confidence intervals for the partial associations between each predictor and the preventive health practices in the respective columns.

* $p < 0.05$.

† $p < 0.01$.

‡ $p < 0.001$.

Table 4

Multiple Regression of Composite of Health Screening Practices (Influenza Vaccination, Mammogram, and Pap Test) (N = 1694)

Variable	B	SE	Beta
Age	.015	.002	.255**
Education in U.S. (years)	-.012	.007	-.059
Marital status (not married = 1, Married = 2)	.526	.049	.247**
Religion (others = 1, protestant or catholic = 2)	-.072	.045	-.034
Birth place (Korea = 0, other = 1)	-.266	.110	-.063*
Years of residency in US	.012	.003	.128**
Acculturation (low = 1, high = 2)	.031	.051	.016
Primary care provider (none = 0, Korean = 1, not-Korean = 2)	.159	.029	.121**
Self-reported health (very good = 1 to poor = 4)	.059	.025	.055*
Health concern (not at all = 1 to very concern = 4)	.036	.031	.026

Note. $R^2 = .242$; Adjusted $R^2 = .237$.

* $p < .05$.

** $p < 0.001$