

Access to Health Care, Beliefs, and Behaviors about Colorectal Cancer Screening among Korean Americans

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Background: Colorectal cancer (CRC) is one of the most common cancers among Korean Americans (KAs) and their CRC screening rates are low. To raise the rates of CRC screening among KAs, it is necessary to improve our understanding of factors that influence their CRC screening behaviors. This study examined socio-demographics, access to health care, health and cultural beliefs, and behaviors about the fecal occult blood test (FOBT) for CRC screening among KAs aged 50 and older. **Methods:** Based on the health belief model, the cultural assessment model for health, and the Powe fatalism model, this study measured socio-demographics (age, gender, years in the U.S., marital status, education, employment, income, and acculturation), health care access (health insurance, having a regular doctor, physician recommendation, and trust in doctor), health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), and cultural beliefs (physical space, health temporal orientation, personal control, and fatalism) and FOBT. A cross-sectional survey (n=202) was conducted. Data analysis was conducted using descriptive analysis, Pearson correlation, and multivariate logistic regression. **Results:** This study found that physician recommendation was the strongest factor in lifetime FOBT utilization in KAs. The results also revealed a positive association among health temporal orientation, health fatalism, and lifetime FOBT among KAs, while previous research found a negative association between fatalism and cancer screening. Years in the U.S., employment, and having a regular doctor were significantly associated with having had a FOBT in the previous year. **Conclusion:** Study results suggested the need for public education programs to increase physician recommendation among KAs. Furthermore, the positive relationships among health temporal orientation, health fatalism, and FOBT utilization in KAs suggests that KAs have a desire to maintain health and find cancer early despite their fatalistic view on health.

Keywords: Colorectal cancer- beliefs- screening- Korean Americans

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Introduction

Asian Americans are the fastest-growing racial/ethnic group in the U.S. (US Census Bureau, 2012). Among Asian Americans, Korean Americans (KAs) saw a 33.1% increase in population from 2000 to 2010 (US Census Bureau, 2012). KAs consisted of large immigrant populations. Nearly 62% of KAs are foreign born according to the 2010 US Census Bureau (2012).

Colorectal cancer (CRC) is the second-leading cause of cancer death for Asian Americans (Hastings et al., 2015). CRC screening reduces mortality. Regular use of a fecal occult blood test (FOBT) reduced the risk of death from CRC by 32% (Shaukat et al., 2013); Colonoscopy can help reduce CRC mortality by about 50% (Nishihara et al., 2013). Both men and women aged 50 and over should have a CRC screening, including an annual FOBT, flexible sigmoidoscopy every five years, or colonoscopy every 10 years (American Cancer Society, 2017). Despite its benefits, rates of CRC screening were still low among KAs.

The California Health Interview Survey showed that the rate of up-to-date CRC screenings (either having an annual FOBT, flexible sigmoidoscopy every five years, or colonoscopy every 10 years) among KAs rose from 30% in 2003 to 59% in 2009 (Fedewa et al., 2016), far below the Healthy People 2020 goal of 70.5% (Office of Disease Prevention and Health Promotion, 2018).

Socio-demographic characteristics, access to health care, and psychosocial factors were predictors of CRC screening for KAs (Jo et al., 2008; Lee and Lee, 2013; Lee et al., 2014; Mawell et al., 2000; Tran et al., 2018). Among socio-demographic factors, positive associations between length of time in the US and CRC screening were consistently found in studies with KAs: KAs who lived longer in the US were more likely to have had up-to-date CRC screening tests (Jo et al., 2008; Lee et al., 2014). As for access to health care factors, having health insurance and usual source of health care were correlates of up-to-date CRC screening in a study (Jo et al., 2008; Tran et al., 2018). In addition, physician recommendation was strongly associated with CRC screening among KAs (Jo et

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al., 2008; Jung et al., 2017). Among psychosocial factors, the empirical evidence indicates that culture-specific beliefs are important correlates of CRC screening behavior in all ethnic groups (Lee and Lee, 2013; Tran et al., 2018). Korean traditional culture is unique. For example, KAs were discouraged from undergoing CRC screening because they fear that a cancer diagnosis will make them a burden to their family (Jo et al., 2008). This implies that, unlike the Western culture of individualism, familism is an important concept in Korean culture (Kang and Crogran, 2008; Lee and Lee, 2013). Korean fatalism, another cultural belief, are traditionally embedded in Korean culture (Lee and Lee, 2013). Korean culture-specific beliefs may greatly influence health-seeking behavior including CRC screening behavior in KAs, but relationships between cultural beliefs and CRC screening in KAs have not been investigated yet.

The low rate of Korean CRC screening may be partly many KAs are foreign-born immigrants. Foreign-born populations are less likely than the general U.S. population to have had cancer screening due to particularly limited access to care and cultural barriers and they have worse outcomes (Kandula et al., 2006; Nwabichie et al., 2018). The aims of this cross-sectional study were to assess socio-demographics, access to health care, health and cultural beliefs, and FOBT utilizations for CRC screening, and to identify factors associated with FOBT among KAs aged 50 and older. Understanding these factors would help to understand how they influence health behavior, including CRC screening and assist in establishing more effective and culturally appropriate interventions for KAs.

Materials and Methods

Design and Sample

A descriptive and correlational research design with a cross-sectional survey was conducted. The sample included KAs who were born in Korea, Korean immigrants to the US, fluent in spoken Korean, aged 50 and older, and at average risk of CRC (with no history of Crohn's disease, ulcerative colitis, CRC, or first-degree relative with CRC). A total of 202 KAs participated in this study.

Measures

Based on the health belief model (Rosenstock, 1974), the cultural assessment model for health (Giger and Davidhizar, 1990), and the Powe fatalism model (Powe, 1995), socio-demographics (gender, age, marital status, education, years in US, employment, income, and acculturation), access to health care (health insurance, having a regular doctor, physician recommendation, and trust in doctor), health and cultural beliefs (susceptibility, severity, benefits, barriers, and self-efficacy, physical space, health temporal orientation, personal control, and fatalism), and FOBT utilization were measured. Acculturation was measured using the Suinn-Lew Asian Self-Identity Acculturation Scale with 21 items (e.g., what language can you speak?) and its Cronbach's alpha is 0.91 (Suinn et al., 1992). The scale for trust in doctor with seven items (e.g., I can tell my

doctor anything, even things I might not tell anyone else) was adapted from the trust scale of the Primary Care Assessment Survey. Cronbach's alpha for the trust scale is 0.86 (Safran et al., 1998).

Based on the health belief model, susceptibility (belief regarding the chance of getting a condition; 4 items), severity (belief about how serious a condition and its sequelae are; 8 items), benefits (belief in the efficacy of the advised action; 5 items), barriers (belief about the costs of the advised action; 22 items), and self-efficacy (confidence in one's ability to take action; 7 items) were measured using the health belief scale (Lee and Lee, 2015). Based on the cultural assessment model for health (Giger and Davidhizar, 1990), and the fatalism model (Powe, 1995), cultural beliefs consisted of physical space (discomfort in relation to physical surroundings during medical procedures; 4 items), health temporal orientation (perspective on current health beliefs and health behaviors related to the concerns about future health; 8 items), personal control (ability to plan activities to control or direct factors within the environment; 4 items of internal control and 10 items of external control), health fatalism (notions of fate, luck, destiny, and predetermination regarding diseases or health conditions; 15 items) and colon cancer fatalism (belief that death is inevitable when cancer is present; 15 items) were measured using the cultural belief scale (Lee et al., 2018). Culturally sensitive Korean versions of health and cultural belief scales were developed by instrument adaptation, modification, and validation processes for KAs (Lee and Lee, 2015; Lee et al., 2018). These scales have good reliability with Cronbach's alpha above 0.70 (Lee and Lee, 2015; Lee et al., 2018). Item options for health and cultural belief scales were scored along a five-point Likert-type response scale ranging from strongly disagree (1) to strongly agree (5).

FOBT utilization was the outcome variable. Two items (Have you ever done a stool blood test at home and mailed the card back to your doctor's office or lab? When did you do your most recent home stool blood test?) were used to measure FOBT use.

Procedure

After the Institutional Review Board at the university approved the research protocol, participants were recruited from community-based organizations such as Korean churches and community centers in the Chicago metropolitan area using convenience sampling. KAs who were eligible and agreed to participate were given a survey package containing a Korean version of the self-administered questionnaire, a consent form, and a stamped return envelope by the principal investigator. The participants returned the survey questionnaire to the principal investigator in person or by mail.

Data Analysis

All analyses were conducted using SPSS Version 23 (Statistical Package for Social Sciences Inc, 2016). Descriptive statistics were calculated for participants' characteristics and FOBT utilization. To determine the association of the socio-demographic factors, access to

health care, health and cultural belief variables with FOBT utilization among KAs, the data analysis was conducted in two steps. Correlation coefficients were examined between the independent variables (socio-demographics, access to health care, and health and cultural beliefs) and outcome variables (FOBT in lifetime and in the previous year). The significant bivariate predictors of the outcomes were then entered into a multivariate logistic regression analysis. Stepwise logistic regression analysis using Wald statistics was conducted.

Results

Sample Characteristics

Table 1 shows the socio-demographics, access to health care information, and FOBT utilization. The mean age of 202 KAs was 62.70. The majority of participants (81.2%) were married and most (74.8%) had lived in the US for more than 20 years. More than half of the participants (60.9%) were women, 61.9% had a regular doctor and 57.7% had health insurance. Table 2 presents means and standard deviations of health and cultural beliefs.

Predictors of Lifetime FOBT

Pearson correlations revealed that physician recommendation, barriers, self-efficacy, health temporal orientation, and health fatalism variables were correlated with lifetime FOBT (Table 3). These significant variables of Pearson correlations were entered into the logistic regression, and physician recommendation, health temporal orientation, and health fatalism were statistically significant in the logistic model as predictors at the 0.05 level (Table 4). After controlling other variables, it was found that KAs who had had a doctor's recommendation were 14 times more likely to have ever had an FOBT (OR=14.08, 95% CI=5.31-37.35) than KAs who did not. KAs who had temporal orientation or health fatalism were more than three times more likely to have ever had an FOBT (OR=3.40, 95% CI=1.25-9.25; OR=3.62, 95% CI=1.69-7.76, respectively).

Predictors of FOBT in the previous year

Only eight out of the 202 participants (4.0%) underwent an FOBT in the previous year. Because of the small FOBT utilization, the parameter covariance matrix could not be computed; it was also difficult to run a multivariate logistic analysis with all variables. Thus, to find predictors of FOBT in the previous year, Pearson correlations for variables were used. Only years in US, employment, and having a regular doctor were significantly associated with FOBT in the previous year. KAs who had lived fewer years in the U.S. were more likely to have had an FOBT than those who had lived there longer ($r=-0.43$, $p<0.01$). KAs who were employed or had a regular doctor were more likely to have had an FOBT in the previous year than those who were not ($r=0.35$, $p<0.05$) or had not ($r=0.43$, $p<0.01$), respectively.

Table 1. Socio-demographics, Access to Health Care, and FOBT Utilization of KAs (n = 202)

Variables	n	(%)	M±SD	Range
Socio-demographics				
Age			62.70±8.74	50-84
50-64	123	(60.9)		
65 and older	79	(39.1)		
Gender				
Male	79	(39.1)		
Female	123	(60.9)		
Years in U.S.			25.28±10.10	1-52
<20 years	51	(25.2)		
≥20 years	151	(74.8)		
Marital status				
Currently married	164	(81.2)		
Not married, living with partner	1	(0.5)		
Single	1	(0.5)		
Separated	4	(2.0)		
Divorced	13	(6.4)		
Widowed	19	(9.4)		
Education				
8th grade or less	15	(7.4)		
Some high school	13	(6.4)		
Graduated from high school	56	(27.7)		
Graduated from technical school	13	(6.4)		
Some college	18	(8.9)		
Bachelor's degree (4 yr.)	66	(32.7)		
Some graduate study	4	(2.0)		
Master's degree	12	(5.9)		
Some post-graduate study	1	(0.5)		
Doctoral degree (e.g., PhD, MD, DDS, JD)	4	(2.0)		
Employment				
Employed full-time	50	(24.8)		
Employed part-time	23	(11.4)		
Not employed	129	(63.9)		
Religion				
Protestant	143	(70.8)		
Catholic	41	(20.3)		
Buddhist	1	(0.5)		
Both Protestant and Buddhist	1	(0.5)		
No religion	16	(7.9)		
Household income				
Up to \$15,000	71	(35.3)		
\$15,001 - \$30,000	56	(27.9)		
\$30,001 - \$50,000	26	(12.9)		
\$50,001 - \$75,000	21	(10.4)		
\$75,001 - \$100,000	13	(6.4)		
\$100,001 - \$150,000	8	(4.0)		
More than \$150,000	6	(3.0)		

Table 1. Continued

Variables	n	(%)	M±SD	Range
Acculturation			1.83±0.42	
Access to health care				
Health insurance				
Yes	116	(57.7)		
No	85	(42.3)		
Usual source of health care				
Yes	125	(61.9)		
No	77	(38.1)		
Physician recommendation				
Yes	35	(17.3)		
No	121	(59.9)		
Don't know	46	(22.8)		
Trust in doctor			3.10±0.40	
FOBT utilization				
Lifetime FOBT				
Yes	45	(22.3)		
No	157	(77.7)		
FOBT in the previous year (n = 45)				
Yes	8	(17.8)		
No	37	(82.2)		

M, Mean; SD, Standard Deviation

Table 2. Health and Cultural Beliefs (n = 202)

Beliefs	M±SD
Susceptibility	2.30±0.63
Severity	2.96±0.80
Benefits	4.16±0.42
Barriers	2.67±0.63
Self-efficacy	3.33±0.72
Physical space	2.46±0.91
Health temporal orientation	4.14±0.46
Internal control	4.13±0.58
External control	2.16±0.59
Health fatalism	2.69±0.60
Colon cancer fatalism	2.12±0.56

M, Mean; SD, Standard Deviation

Discussion

This study examined socio-demographics, access to health care, health and cultural beliefs, and FOBT utilization for CRC screening among KAs aged 50 and older. This study shows that of all variables, only physician recommendation, health temporal orientation,

Table 3. Correlations of Independent Variables and FOBT (n = 202)

Variables	Lifetime FOBT		FOBT in the previous year	
	r-coefficient	P-value	r-coefficient	P-value
Socio-demographics				
Age	0.01	0.890	-0.19	0.246
Gender	-0.11	0.112	-0.01	0.964
Years in U.S.	0.04	0.598	-0.43 ^b	0.006
Marital status	-0.02	0.818	-0.06	0.733
Education	-0.06	0.372	0.04	0.795
Employment	-0.03	0.659	0.35 ^a	0.029
Religion	0.13	0.075	0.08	0.618
Household income	0.05	0.464	-0.13	0.434
Acculturation	0.01	0.788	-0.21	0.197
Access to health care				
Health insurance	0.07	0.302	-0.31	0.051
Having a regular doctor	-0.10	0.150	0.43 ^b	0.006
Having doctor's recommendation	0.51 ^c	<0.0001	-0.07	0.689
Trust in doctor	-0.08	0.833	0.05	0.780
Health and cultural beliefs				
Susceptibility	-0.08	0.267	0.21	0.203
Severity	0.01	0.947	0.04	0.833
Benefits	0.04	0.536	0.23	0.168
Barriers	-0.20 ^b	0.004	0.12	0.461
Self-efficacy	0.22 ^b	0.002	-0.29	0.077
Physical space	-0.02	0.770	-0.05	0.754
Health temporal orientation	0.14 ^a	0.043	0.11	0.527
Internal control	0.00	0.951	0.14	0.402
External control	0.09	0.230	0.12	0.487
Health fatalism	0.19 ^b	0.006	-0.15	0.351
Colon cancer fatalism	-0.06	0.416	-0.13	0.445

^ap < 0.05, ^bp < 0.01, ^cp < 0.001 (2-tail), Lifetime FOBT: Ever had FOBT in lifetime

Table 4. Multivariate Logistic Regression Analysis for Lifetime FOBT (n = 202)

Variable	Odds ratio	95% CI
Access to health care		
Having doctor's recommendation	14.08	5.31-37.35
Health and cultural beliefs		
Health temporal orientation	3.40	1.25, 9.25
Health fatalism	3.62	1.69, 7.76

and health fatalism were significantly associated with lifetime FOBT in KAs. Physician recommendation was the strongest predictor of lifetime FOBT (OR=14.08) in KAs. If KAs received physician recommendation for FOBT, they were 14 times more likely to have had lifetime FOBT than KAs who did not. This finding is consistent with the results of other breast, cervical, and CRC studies with KAs, which indicated that physician recommendation is the most important factor influencing breast, cervical, and CRC screening behavior in KAs (Jo et al., 2008; Jung et al., 2017; Juon et al., 2006; Lee and Lee, 2013). In individual interviews (Lee and Lee, 2013), all participants said that they take doctors' recommendations seriously and would have FOBT according to their recommendations because doctors are experts in health. Another study reported that a doctor's recommendation was significantly associated with FOBT utilization among Chinese and KAs (OR=4.00; 95% CI=1.43-11.15) (Jung et al., 2017). Although physician recommendation is a powerful factor influencing FOBT behavior in KAs, many KAs did not receive a doctor's recommendation. Only 29% (Jo et al., 2008) and 17.3% of participants in this study had a physician recommendation. This finding suggests that low rates of doctor's recommendation may be one reason for low FOBT rates in KAs.

Health temporal orientation was also a significant predictor of lifetime FOBT; KAs who had a future orientation (i.e., perceived importance of detecting and being healthy in the future) were more likely to have ever had an FOBT than were KAs who without a future orientation. Previous cancer screening studies with KAs indicated that lack of preventive orientation (e.g., having no symptoms) may predict breast, cervical, and CRC screening (Kandula et al., 2006; Lu et al., 2016). Foreign-born Asians, including KAs, reported that one of the most frequently mentioned barriers to cancer screening was the absence of symptoms (Kandula et al., 2006; Lu et al., 2016). Regular checkups reflect access to health care as well as individual preventive health orientation (Maxwell et al., 2000). However, these studies used only one item to assess why they had not taken the cancer test or tested the association only between regular checkups and cancer screening. A scale to measure preventive orientation has not been used in the literature on KAs. This study finally shows evidence that health temporal orientation is a predictor of lifetime FOBT in KAs using a reliable and valid scale.

This study found that KAs with health fatalism, a belief in predeterminism, and luck were more likely to have had an FOBT. Much of the previous research on other ethnic

groups viewed fatalism as an attitude that contributes to negative health outcome because, in a fatalistic view, events are predetermined. Much of the health literature portrays cancer fatalism as a barrier to cancer screening (Niederdeppe and Levy, 2007; Powe and Finnie, 2003). Unlike previous research that found a negative association between fatalism and cancer screening, this study found a positive association between health fatalism and FOBT in KAs. This suggests a need to view health fatalism from a different perspective, that is, health fatalism, especially predeterminism and luck, may not be a barrier to cancer screening in KAs.

Literature supports fatalism's positive role in health. Fatalistic sentiments may have useful functions for healthy people, as it suggests that admitting something that they cannot control is a form of stress relief, a way to express or manage uncertainty and avoid self-blame (Keely et al., 2009). For Korean cancer patients, this fatalistic attitude appears to offer more than an acceptance of the inevitable (Kang et al., 2008). For Chinese and Korean cancer patients, fatalism may make their misery more bearable while conserving the patients' energy to live with the disease (Ho et al., 2003; Kang et al., 2008). This way of thinking might help researchers understand the positive role of health fatalism in KAs.

Regarding significant predictors of lifetime FOBT, both an internal belief and external forces over health behavior can explain predictors of lifetime FOBT in KAs. An internal belief (health temporal or preventive orientation) and external forces (powerful others—physician recommendation; predeterminism and luck by unknown supernatural power, i.e., health fatalism according to Korean traditional beliefs) positively affected lifetime FOBT in KAs. This indicates that KAs were more likely to have ever had an FOBT if they believed in preventive health orientation (e.g., finding health problems early is important), if a doctor recommended FOBT, and if they believed in predeterminism and luck by unknown supernatural power. Although this perspective for lifetime FOBT in KAs was based on Korean culture, it may also apply to other ethnic groups because previous literature has reported similar findings among different ethnic groups. For example, individuals seldom had a totally 'internal' or 'external' belief about determinants of health (Davison et al., 1989) and they maintain a balance between two beliefs (Keely et al., 2009). For example, Latina participants in a qualitative study (Florez et al., 2009) show that internal (will to change) and external beliefs (e.g., genetics, God) merge into a single control over breast cancer detection. Both internal and external forces characterize people's beliefs about cancer detection. A qualitative study (Lee and Lee, 2013) revealed the positive relationship between health fatalism and lifetime FOBT utilization in KAs. Individual interviewees who believed in destiny or predeterminism mentioned that they would still try to do whatever they could for their health. These statements show that both internal belief (will to be healthy) and external force (predetermination) exist in their mind because for KAs, it was important to take the initiative in their health behaviors and early detection efforts despite

their fatalistic view.

Although a previous study has identified that KAs who had spent more years in the U.S. were more likely to have had up-to-date CRC screening tests (Jo et al., 2008; Lee et al., 2014), little research has reported the association between years in the U.S. and FOBT in the previous year. This study found that KAs who had lived in the U.S. for fewer years, were employed, and had a regular doctor were more likely to have had an FOBT in the previous year. One possible explanation of more FOBT in the previous year among KAs who had spent less time in the US is that most health insurance companies cover FOBT because it is a basic, inexpensive test, and new immigrants may prefer FOBT to endoscopy.

This study has several limitations. First, this study measured FOBT only as an outcome variable, which is one of the CRC's screening options. According to ACS guidelines, people can choose sigmoidoscopy or colonoscopy and it might be useful to include other CRC screening options as an outcome variable. Second, a small number of KAs have had an FOBT, so many KAs might generate more accurate information on FOBT behaviors. Third, generalizability may be limited because this study used voluntary convenience sampling.

In conclusion, study results suggested the need for programs to increase physician recommendation for FOBT because it was found to be the most significant predictor of having an FOBT in KAs. This study was the first to find a positive relationship between health fatalism and FOBT utilization in KAs. If health fatalism, particularly a belief in predeterminism or destiny, is embedded in KAs, interventions based on education might not be able to change it.

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