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Cancer Health Beliefs and Knowledge in Relationship to Korean American Cigarette Smoking Status

Melissa Sue George
Grand Valley State University

CANCER HEALTH BELIEFS AND KNOWLEDGE IN RELATIONSHIP TO KOREAN AMERICAN CIGARETTE SMOKING STATUS

By

Melissa Sue George

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Thesis Committee Members:

Katherine Kim, Ph.D., R.N.

RuthAnn Brintnall, M.S.N., R.N.

Theresa Bacon-Baguely, Ph.D., R.N.

ABSTRACT

CANCER HEALTH BELIEFS AND KNOWLEDGE IN RELATIONSHIP TO KOREAN AMERICAN CIGARETTE SMOKING STATUS

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The purpose of this study was to describe health beliefs and knowledge in relationship to Korean American cigarette smoking status. The data for this study came from the Asian American Cancer Control Study conducted at the University of Illinois at Chicago. The Asian American Cancer Control Survey examined the cigarette smoking status, demographic variables, cancer knowledge and beliefs, and alcohol use of 263 Korean Americans. The health belief model was the conceptual framework for the study. Chi square analysis indicated a statistically significant relationship between cigarette smoking status and gender, education, spoken English proficiency, years of residency in the United States, and marital status for the total sample. When the data were analyzed separately for males and females, only years of residency was statistically significant for males. Knowledge of the health consequences of smoking and alcohol use was significantly related to smoking status for the total and male samples only.

Dedication

This thesis is dedicated to my husband Andrew and my daughter Rachel for their patience, understanding, and support during this project. Thanks to my family for their encouragement, love, and many hours of babysitting.

This research would not have been completed without the willing assistance and mentorship by my committee members: Katherine Kim, RuthAnn Brintnall, and Theresa Bacon-Baguely. A special thanks to Katherine Kim for her guidance and allowing me to participate in her research. Her knowledge and expertise in research is outstanding.

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CHAPTER ONE

INTRODUCTION

Cigarette smoking is widely recognized as a negative health behavior that can cause cancer. Cigarette smoking was expected to be responsible for almost one-third of all cancer deaths in the United States (U.S.) in 1995 (Shopland, 1995). Both lung cancer and oral/pharyngeal cancer are related to cigarette smoking. For lung cancer, the number one cause of cancer death in the U.S., 178,100 new cases and 160,400 deaths are estimated to occur in 1997 (Parker, Tong, Bolden, & Wingo, 1997). For oral/pharyngeal cancer, 30,750 new cases and 8,440 deaths are estimated to occur in 1997 (Parker et al., 1997).

National Health Interview Surveys and other surveys by the National Center for Health Statistics (NCHS) have been conducted to examine cigarette smoking and cancer prevention knowledge and beliefs of adults in the U.S. However, none of these studies included Asian Americans, and in particular, Korean Americans. As a result, cancer control data on Korean Americans are lacking.

Asian Americans and Pacific Islanders (AAPIs) are one of the minorities that nurses will be caring for more frequently since they are the fastest growing minority population in the U.S. Between 1980 and 1990, AAPIs increased by 108% to a 1990 population of 7.3 million (Department of Commerce, 1988, 1993). Also between 1980

and 1990, the Korean American population grew by 123.5% to a 1990 population of 789,849, or 11% of the AAPI population (Department of Commerce, 1988, 1993).

A difficulty nurses may encounter in caring for Korean Americans is the inadequate data regarding the health status of this group, including information about cancer. Data is inadequate because of an insufficient quantity of recorded data, the misclassification of data, and small sample sizes. First, the lack of data is due to past coding practices used in several data collection systems such as vital statistics managed by the NCHS. The vital statistics program of the NCHS has a separate coding for Japanese, Chinese, and Filipinos, but group together Asian Indians, Koreans, Vietnamese, Laotians, Cambodians, Thais, Hmongs, and Pakistanis' into one Asian racial category. Therefore, no estimates on mortality rates exist for these subpopulations of Asians (Yu & Liu, 1992).

Second, the misclassification of health data for Asian Americans has been identified as another reason for the inadequate data that exists. Hahn, Mulinare, and Teutsch (1992) determined that the inconsistent coding of race and ethnicity in infants at birth and death was low for whites (1.2%), greater for blacks (4.3%), and the greatest for races other than white or black (43.2%) with a misclassification rate of 33.3% for Chinese, 48.8% for Japanese, and 78.7% for Filipinos. Data for Korean Americans were unavailable.

Third, insufficient sample sizes have contributed to the lack of meaningful data. Yu and Liu (1992) reported that:

> NCHS's current survey practice of sampling in proportion to population size means that, on average, about 2.9% of its representative national sample, plus or

> minus the sampling error, will be Asian/Pacific Islanders. Thus, even if detailed Asian/Pacific Islander subgroup identifications are specified on its national survey forms, no single-year (or even cumulative-year) data will provide a sufficient sample size of any specific subgroups to allow meaningful analysis (p. 1647).

If nurses and other health care professionals are unaware of the health status, practices, and beliefs of Asian Americans, and in particular Korean Americans, the needs of this population will not be fully met. "To neglect ethnic specificity of data or to rampantly aggregate these groups under the rubric of AAPIs can mask enormous heterogeneity of health status changes. Failing to have sufficient ethnically specific data is to grossly misdiagnose the specific health status"(Chen & Hawks, 1995, p. 264). Determining what Korean Americans know and believe about cigarette smoking can help determine interventions that can be effective in preventing smoking initiation and encouraging smoking cessation, therefore reducing the risk of cancer morbidity and mortality.

Purpose of the Study

The data for this study came from a larger study, the Asian American Cancer Control Study, conducted at the University of Illinois at Chicago (Yu, Kim, Chen, & Liu, 1997). The Asian American Cancer Control Study adapted the 1987 Cancer Control Supplement questionnaire of the National Health Interview Survey (Department of Health and Human Services [DDHS], 1989b). The study examined several variables, including demographic characteristics, knowledge about cancer and cigarette smoking, and cancer health beliefs of Asian Americans in the Chicago area. The purpose of this study was to

describe cancer health beliefs and knowledge in relationship to Korean American cigarette smoking status.

CHAPTER TWO

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Conceptual Framework

The Health Belief Model (HBM), developed in the 1950's by a group of social psychologists at the U.S. Public Health Service, provided the conceptual framework for this study. The model was originally developed to explain and predict health behaviors related to preventive health, but has since been extended to apply to illness and sick role behaviors. The model, which was built upon social cognitive theory, focuses on the influence of social, psychological, and cognitive variables on health behavior. The HBM ". . . has been one of the most influential and widely used psychosocial approaches to explaining health-related behavior" (Rosenstock, 1990, p. 39). Also, substantial evidence exists that HBM dimensions are important contributors to the explanation and prediction of individuals' health-related behaviors (Janz & Becker, 1984). The following paragraphs will include an overview of the HBM, including the variables specific to this study.

The HBM provides a framework for understanding why individuals participate or fail to participate in health-related behaviors. For the purposes of this study, the recommended health-related behavior, or the preventive health action, is smoking cessation. In order for a behavior change such as smoking cessation to occur, an individual must feel motivated to take action, feel threatened by a health problem or their current lifestyle practices, believe that taking action would be beneficial at an acceptable

cost, and feel able to implement the behavior change (Rosenstock, 1974; Rosenstock, Strecher, & Becker, 1988).

The variables of the HBM include:

Perceived susceptibility. The individual's own subjective risks of contracting a condition (Rosenstock, 1974).

Perceived severity. The individual's perceptions of the seriousness of a given health problem. The individual may evaluate both the medical or clinical consequences, such as death or disability, and the social consequences including the effect of the health problem on work, family life, and social relations (Rosenstock, 1974).

Perceived threat. The combination of perceived susceptibility and perceived severity (Rosenstock, 1974).

Perceived benefits. Beliefs regarding the effectiveness and availability of the recommended action. A threatened individual will accept the recommended action if this action is perceived as feasible and efficacious (Rosenstock, 1990).

Perceived barriers. The potential negative aspects of the recommended health action. Examples of barriers include cost, inconvenience, and fear of pain or discomfort (Rosenstock, 1974).

Likelihood of action. The perceived benefits minus the perceived barriers. The likelihood of taking a recommended preventive health action is due in part to how the individual weighs the perceived benefits against the perceived barriers (Becker, Drachman, & Kirscht, 1974).

Cues to action. Factors that serve as a cue, or stimulus, to the recommended action. Cues may be internal, such as physical symptoms, or external, such as media influence or advice from others (Rosenstock, 1974).

Modifying factors. Demographic, sociopsychological and structural factors that may ". . . affect the individual's perception and thus indirectly influence health-related behavior" (Rosenstock, 1990, p. 44). Examples of demographic factors are age, gender, education, and marital status. Sociopsychological factors may include social pressure, personality, and group support. Structural factors may be compromised of prior experience or knowledge about the disease or condition.

Health motivation. A concern about health that influences health-related behavior (Becker, Drachman, & Kirscht, 1974). According to Champion (1984), "Health motivation refers to a generalized state of intent that results in behaviors to maintain or improve health" (p. 74).

Self-efficacy. The individual's beliefs about their capability of adopting the recommended action. In 1988, Rosenstock, Strecher, and Becker recognized the need to include self-efficacy in the HBM to further explain behavior. For behavioral change to succeed, an individual must feel competent (self-effacious) to implement the new health behavior (Rosenstock et al., 1988).

In summary, the HBM is a psychosocial model and is limited to explaining and predicting behaviors that are due to attitudes and beliefs (Janz & Becker, 1984). Although cigarette smoking is a behavior influenced by a strong habitual component, attitudes and beliefs also impact cigarette smoking behavior. Therefore the HBM can be utilized to

study cigarette smoking behaviors. For example, why an individual decides to smoke or not to smoke may be influenced by their age or gender, their level of knowledge about the health consequences of smoking, their motivation to live a healthy lifestyle, or their beliefs in the benefits of not smoking. This study will focus on the independent variables of modifying factors (demographic variables and cancer knowledge), health motivation, and the perceived benefits of not smoking in relationship to the dependent variable, cigarette smoking status.

Literature Review

Research utilizing and analyzing the HBM is extensive. Although studies exist examining the relationship of health beliefs to smoking behaviors, no studies were found concerning Korean Americans. Thus, the literature review will necessarily focus on smoking and cancer, and then the HBM, specifically the variables of modifying factors, health motivation, and perceived benefits.

Smoking and cancer. Extensive research has been done on the negative health effects of cigarette smoking. This study focuses on cancer, particularly lung and oral/pharyngeal cancer.

Cancer is the second leading cause of death in the United States. Lung cancer is the number one cause of cancer death among all Americans including Asian and Pacific Islanders (National Center for Health Statistics, 1996). Cigarette smoking is the major cause of lung cancer accounting for approximately 90% of squamous cell lung cancer cases, 88% of small cell lung cancer cases, and 64% of adenocarcinoma lung cancer cases

(Jedrychowski et al., 1992). For lung cancer, 178,100 new cases and 160,400 deaths are estimated to occur in 1997 (Parker, Tong, Bolden, & Wingo, 1997).

Although lung cancer is the leading cause of cancer death, many cases of lung cancer can be prevented by not smoking cigarettes. Even current smokers can reduce their risk of lung cancer if they stop smoking. A research study by Halpern, Gillespie, and Warner (1993) concluded that smoking cessation at any age was beneficial in terms of reduced risk of lung cancer mortality. Lower lung cancer death risk was noted for those who quit earlier in life.

A study by Chyou, Nomura, and Stemmerman (1992) found similar results among 8006 Japanese men living in Hawaii. They determined the percentage of cancer risk attributable to smoking by calculating the population attributable risk. They observed that 85% of lung cancer incidence among current and never smokers could have been avoided if current smokers had never smoked. Also, if current smokers had stopped smoking, 60% of the lung cancer risk that occurred in the population of current and former smokers could have been avoided.

Oral/pharyngeal cancer is significantly related to cigarette smoking. In 1997, 30,750 new cases and 8,440 deaths due to oral/pharyngeal cancer are estimated to occur (Parker et al., 1997). The estimated cigarette-smoking-attributable deaths from oral/pharyngeal cancer is 92% for males and 61% for females (DHHS, 1989a). These statistics indicate that many cases of this disease can be prevented by not smoking cigarettes.

A study by Day et al. (1993) examined racial differences in disease patterns and risks for oral/pharyngeal cancer to determine why Black Americans have a higher incidence of this disease. Interviews of 1065 oral/pharyngeal cancer patients and a control group of 1182 adults assessed tobacco and alcohol consumption, medical and family history, dental conditions, nutritional factors, and social and occupational factors. Compared to Whites, a higher percentage of Blacks smoked and drank alcohol. The use of alcohol among current smokers was determined to be the most significant contributor to the excess risk of oral/pharyngeal cancer in Blacks. The combined effects of very heavy drinking (≥ 30 drinks per week) and very heavy smoking (≥ 40 cigarettes daily) resulted in an odds-ratio (OR) of 200 for Blacks compared to an OR of 40 for Whites. Researchers estimated that 73% of Whites and 83% of Blacks developed their cancer as a result of alcohol and/or tobacco use. Also, smoking cessation resulted in a sharp decline for risk of oral/pharyngeal cancer in both racial groups.

Modifying factor - Demographic variables. The HBM includes demographic variables to assist in explaining health-related behavior. Rosenstock (1990) states that sociodemographic variables ". . . are believed to have an indirect effect on behavior by influencing the perception of susceptibility, severity, benefits, and barriers" (p. 44). Modifying factors are generally assumed to indirectly influence health-related behavior, but HBM studies generally have not measured this dimension. The review of the literature regarding demographic variables focused on in this study include age, gender, education, spoken English proficiency, marital status, and years of residency in the U.S. First, two

major studies will be described and then the literature will be reviewed for each demographic variable.

The first major study regarding demographic variables involves the National Health Interview Survey (NHIS), a continuous, nationwide household interview, which is conducted by the National Center for Health Statistics (DHHS, 1989b). The NHIS in 1987 consisted of a questionnaire about basic health and sociodemographic characteristics and a second questionnaire on Cancer Epidemiology and Control (CEC). The interviewed sample consisted of 47,240 households containing 122,859 persons for the basic health and sociodemographic questionnaire. The respondents' age, gender, education, and marital status were surveyed according to cigarette smoking status. The results showed that smoking prevalence was higher for respondents aged 25-44 years than for those respondents aged 75 years and older (33.2% vs. 8.9%). Cigarette smoking was more prevalent among males than females (31.2% vs. 26.5%). Smoking prevalence was higher among those with less than 12 years of education (35.5%) compared to those with more than 12 years of education. A higher percentage of respondents who were separated and divorced were current smokers compared to respondents who were currently married (43.9% vs. 28.1%). There are limitations to this study. Persons residing in nursing homes, members of the armed forces, or institutionalized persons were not included in the sample of this study. This may limit the generalizability of the results to these groups of people.

The second major study regarding demographic variables is a report conducted in California between June 1990 and July 1991 (Burns & Pierce, 1992). A five minute phone

survey collecting information on smoking prevalence was completed for 118,448 adults. Detailed phone interviews on smoking behaviors were then completed for 26,815 adults, 7,667 adolescents, and 5,342 women who had been pregnant within the past five years. Several different races were part of the sample including Whites, Blacks, Hispanics, and Asian Americans and Pacific Islanders.

The sociodemographic data gathered included age, gender, and education. The results were similar to the 1987 NHIS data (DHHS, 1989b). For the total sample, 23.7% of respondents aged 25-44 years were current smokers compared to 12.3% of respondents aged 65 years and older who were current smokers. Smoking prevalence was higher among males than among females (25.5% vs. 19.1%), especially among Korean Americans (35.8% vs. 13.6%). For the total sample, smoking prevalence was higher among those who completed less than 12 years of education compared to those with 16 or more years of education (25.9% vs. 12.7%). For Asian and Pacific Islander males, smoking rates also declined with higher education. This was not true for females. The authors suggest that this pattern may indicate that as women become more educated, the less likely they are to smoke but also less likely to be as strongly influenced by traditional cultural stereotypes and that these two influences may counterbalance each other (Burns & Pierce, 1992).

The following paragraphs will examine each demographic variable individually. Age is the first demographic variable examined in relationship to cigarette smoking status. Several studies have researched the demographic characteristic of age. These studies found that smoking prevalence declined with age (Halpern & Warner, 1994) and was

highest in the 25-44 year old age group (Centers for Disease Control and Prevention [CDC], 1992a; CDC, 1994).

Gender is the second demographic variable reviewed. Consistent with the first two major studies examined (DHHS, 1989b; Burns & Pierce, 1992), other studies have shown that smoking was more prevalent among men than women (Pierce, Fiore, Novotny, Hatziandreu, & Davis, 1989b; Fiore, 1992; CDC, 1994). Although the overall prevalence of smoking among U.S. adults is declining, the rate of decline is occurring faster for men than for women, and if this trend continues, women may smoke more than men in the future (Fiore et al., 1989).

Differences in smoking prevalence exist among Asian American men and women, but to a greater degree than American men and women overall. For example, among Vietnamese adults living in the San Francisco Bay area, 56% of men and 9% of women were current smokers (Jenkins, McPhee, Bird, & Bonilla, 1990). Other studies have found similar results (CDC, 1992a; 1992b; 1994).

Education is the third demographic variable that is associated with cigarette smoking status. Pierce, Fiore, Novotny, Hatziandreu, and Davis (1989a) noted that:

> National trends in smoking prevalence by educational category from 1974 through 1985 show that education has replaced gender as the major sociodemographic predictor of smoking status. Smoking prevalence has declined across all educational groups but the decline has occurred five times faster among the higher educated compared with the less educated. (p. 56).

Several studies have shown that higher education, in particular high school graduate level or higher, was associated with lower smoking prevalence (Pierce et al., 1989b; CDC, 1992a; Fiore, 1992; Manfredi, Lacey, Warnecke, & Buis, 1992; CDC, 1994; Halpern & Warner, 1994).

Two aspects of acculturation, years of residency in the U.S. and spoken English proficiency, are the fourth and fifth demographic variables studied here. Acculturation is the cultural and behavioral adaptation that occurs to a person in a new culture (CDC, 1992a). Two studies reported that smoking prevalence was higher among Vietnamese men whose English proficiency was limited and who had lived less than ten years in the U.S. (Jenkins et al., 1990, CDC, 1992a). Another study indicated that current Cambodian and Laotian male smokers were significantly less likely to understand spoken English than former or never smokers (Chen et al., 1993).

Marital status is the last demographic variable to be examined in this study according to cigarette smoking status. Broman (1993) studied the relationship between social relationships and health-related behavior. In particular, the social relationships of spouse, employee, organization member, and friend were examined in relationship with seat belt use, cigarette smoking, and alcohol consumption. The analysis indicated that more social relationships were related to better health behavior. People who were married were less likely to be cigarette smokers.

In summary regarding demographic variables as a modifying factor in the HBM, smoking prevalence was higher among younger, male, less educated, less acculturated,

and not married adults. In contrast, smoking prevalence was lower among older, female, more educated, more acculturated, and married adults.

Modifying factor - Structural variable: Knowledge. Knowledge, a structural modifying factor of the HBM, has an indirect effect on behavior by influencing health beliefs. Rosenstock (1974) states "perceived susceptibility and severity having a strong cognitive component are at least partly dependent on knowledge" (p. 331). This study examines the relationship of cigarette smoking status to cancer knowledge. The following paragraphs will review studies of the HBM and knowledge, along with studies that examine the relationship of cancer knowledge to smoking status.

Price and Everett (1994) utilized the HBM in assessing low socioeconomic adults' perceptions of lung cancer and smoking. These researchers found that former smokers were significantly more knowledgeable about lung cancer than were current smokers. Also, lower levels of knowledge concerning smoking and lung cancer were evident in subjects who were older, less educated, and were current smokers, than in younger, more highly educated nonsmokers. Limitations of this study include a low response rate (42%), sampling (inability to include those without a telephone), generalizability to the United States (study conducted in Ohio), and response set bias (subjects likely answering questions in a socially accepted manner).

Champion (1987) researched the practice of breast self-examination (BSE) in relationship to HBM variables. Knowledge of breast cancer and BSE, along with susceptibility, seriousness, barriers, health motivation, and control were the HBM variables hypothesized to be significantly correlated with the frequency of BSE. After

stepwise multiple regression analysis was completed, the barrier concept accounted for 22% of the variance and knowledge 4% while the other HBM concepts added insignificant amounts to the total variance. Therefore barriers and knowledge were found to be significant in predicting the frequency of BSE.

Barnes and Thomas (1990) explored cancer knowledge and beliefs by utilizing the HBM. The purpose of their research was to study the effect of a modified cancer education program on cancer knowledge and beliefs of elderly adults. Two groups received cancer education, one modified for the elderly and one considered as a conventional educational program. A third group, the control, received education about nutrition. Although knowledge scores increased in the two groups who received cancer education, there was not a significant difference between these two groups nor between the control group.

The Cancer Epidemiology and Control (CEC) questionnaire of the National Health Institute Survey (DHHS, 1989b) researched cancer knowledge and beliefs according to cigarette smoking status. Current smokers were less knowledgeable that cigarette smoking is related to lung cancer and oral/pharyngeal cancer than former or never smokers. Current smokers were less knowledgeable about the health consequences of smoking. Twenty-five percent of current smokers agreed or strongly agreed that "everything causes cancer anyway so it doesn't really matter if you smoke" compared to 9.6% of former smokers and 8.6% of never smokers. Fifty-five percent of current smokers agreed or strongly agreed that "most deaths from lung cancer are caused by cigarette smoking" compared to 72.8% of both former smokers and 77.8% of never

smokers. Overall current smokers were less knowledgeable about cancer than former or never smokers.

Other studies have shown similar results in that current smokers are less knowledgeable that cigarette smoking may cause cancer than nonsmokers. In a sample of 2092 adults living in an urban area, 66.9% of current smokers versus 83.0% of never smokers believed that cigarette smoking is a cause of lung cancer (Brownson et al., 1992). Vietnamese men who were significantly more likely to smoke were those who did not know that smoking causes cancer (Jenkins et al., 1990). Among Southeast Asian males, in particular Cambodians, Laotians, and Vietnamese, knowledge that cigarette smoking may cause cancer did not differ significantly except for Laotians. Only 21.6% of current Laotian male smokers compared to 35.8% of never smokers knew that smoking may cause cancer (Chen et al., 1993).

In summary, the HBM, which conceptualizes knowledge as a modifying factor, provides an appropriate framework for determining the effect of knowledge on health behavior. Although knowledge plays a significant role in influencing behavior, the effect is likely indirect. The literature indicates that overall, individuals who were never smokers or were former smokers were more knowledgeable about the health consequences of cigarette smoking. Nursing can have an impact in this area by educating individuals, particularly current smokers, about these negative health consequences.

Health motivation. Health motivation, a HBM variable that was introduced by Becker et al. (1974) is characterized as a concern about health that influences health behavior. Champion (1984) states that "health motivation relates to a state of concern

(salience) about general health matters, which results in positive health activities and willingness to seek and comply with orders that are believed to decrease disease" (p. 78). Health motivation in this study examines the relationship of cigarette smoking and alcohol use. The first four studies reviewed utilized the HBM in examining health motivation. The last three studies investigate smoking and alcohol use.

Becker et al. (1974) conducted 116 interviews with mothers of children who had otitis media and were receiving an antibiotic. The HBM was utilized as a predictor of compliance with learning about the antibiotic and appointments, giving the antibiotic, and keeping appointments. Study measures of general health concern, or health motivation, consistently predicted giving the antibiotic and the appointment-keeping ratio.

Maiman, Becker, Kirscht, Haefner, and Drachman (1977) included health motivation in evaluation of the HBM's ability to explain compliance by mothers to a diet regimen prescribed for obese children. Engaging in practices that contribute to the health of the child or family, such as giving vitamins, buying special foods, and ensuring adequate exercise and rest, was substantially associated with weight loss. General health concern, as indicated by mothers who reported higher levels of concern about their child's health and about the chance of the child getting sick, was a substantial predictor of a child's weight loss.

A study conducted by Champion (1984) included health motivation in addition to the four original concepts of the HBM. This study focused on instrument development for examining HBM variables as they relate to breast self-examination (BSE). Using a convenience sample of 301 women, frequency of BSE was measured on a Likert scale.

The results indicated that the instrument can reliably and validly measure health motivation, and the other four concepts of susceptibility, seriousness, benefits, and barriers. Also, women who had high scores on health motivation reported greater frequency of BSE.

Using Champion's (1984) instrument as a basis, Kim, Horan, Gendler, and Patel (1991) developed the Osteoporosis Health Belief Scale (OHBS) to measure health beliefs related to osteoporosis. The 35-item self-report questionnaire assessed the beliefs related to exercise behaviors and calcium intake of 150 elderly subjects. The instrument consists of seven subscales: Seriousness, Susceptibility, Health Motivation, Calcium Benefits, Calcium Barriers, Exercise Benefits, and Exercise Barriers. Results of discriminant function analysis showed that barriers and health motivation were significant constructs in explaining both calcium intake and exercise behaviors.

Patterson, Haines, and Popkin (1994) conducted a study with 5484 American adults aged 21 and older to determine population subgroups with similar patterns of diet quality, physical activity, alcohol consumption, and cigarette smoking. Seven health behavior typologies were identified. Fifteen percent of the sample who ate a poor diet, were sedentary, drank 2 alcoholic drinks per week, and smoked more than one pack of cigarettes per day were in the smoking lifestyle. Low income and low educational achievement were associated with the smoking lifestyle. Six percent of the sample were in the drinking lifestyle (more than 21 drinks per week and 6 cigarettes a day) and 2.3% in the hedonistic lifestyle (42 drinks per week and 19 cigarettes a day). In contrast, 10% of the subjects with a health promoting lifestyle ate a very good diet, were physically active,

drank 3 times a week, and smoked one cigarette a day. Smoking and other unhealthy behaviors were often affiliated with each other.

Willard and Schoenborn (1995) applied data from the 1992 National Health Interview Survey of Youth Risk Behavior to examine the relationships between cigarette smoking and other high risk behaviors among adolescents 12 to 21 years old. Almost 29% of males and 25.8% of females were current smokers. Current smokers were more likely to drink alcohol, drink more than five drinks in a row, use marijuana, use cocaine, use smokeless tobacco, carry a weapon, engage in a physical fight in the past year, and not always wear a seat belt than former smokers, never smokers, and those who had experimented with cigarette smoking. Current smokers were also more likely than never smokers to ever had sexual intercourse, exercise less than three times a week, and eat fewer than five servings of fruits and vegetables per day. The data indicated that a consistent association between smoking and other unhealthy behaviors exists, demonstrating that high risk behaviors may cluster.

Woodward, Bolton-Smith, and Tunstall-Pedoe (1994) utilized data from the Scottish Heart Health Study to primarily compare diet and exercise knowledge between 4896 smokers and 4595 nonsmokers. Smokers were found to have poorer dietary knowledge and knowledge of personal risk modifiers of coronary heart disease. Smokers also had a higher intake of dietary cholesterol and alcohol.

Health motivation, a concern about health, can encourage an individual to engage in healthy behaviors. Health motivation in this study examines the relationship of smoking and alcohol use. The literature indicates that unhealthy behaviors such as smoking and

drinking tend to co-occur suggesting that these individuals who engage in the negative health behavior of smoking may be more likely to be drinkers and may lack a general attitude of health motivation.

Perceived benefits. Perceived benefits is another variable of the HBM that is important in predicting and explaining health-related behaviors. According to Rosenstock (1990), the perceived benefits of a health behavior help define the course of action that is likely to be taken. An individual who feels threatened is more likely to accept a recommended health behavior if the behavior is perceived as feasible and efficacious.

Janz and Becker (1984) provide a critical review of 29 HBM studies that were published between 1974 and 1984, a tabulation of 17 studies conducted prior to 1974, and a summary of all 46 studies. The HBM variables of perceived susceptibility, severity, benefits, and barriers were examined in each study to determine what variables were associated with the health-related behavior under study. For the HBM studies prior to 1974, benefits produced the lowest significance ratio at 73% but for the studies between 1974 and 1984, benefits was the second highest significance ratio at 81%. With all the studies combined, the significance ratio orderings were barriers 89%, susceptibility 81%, benefits 78%, and severity 65%. Janz and Becker (1984) concluded that substantial empirical evidence supports HBM variables in predicting and explaining an individual's health-related behaviors.

The Cancer and Epidemiology and Control (CEC) questionnaire of the NHIS (DHHS, 1989b) assessed respondents about the health benefits of quitting smoking. Respondents were asked if they knew that stopping smoking reduces the risk of lung

cancer and oral/pharyngeal cancer. Current smokers were the least knowledgeable about this benefit of smoking cessation while former smokers were the most knowledgeable about this fact.

Price and Everett (1994) conducted a study applying the HBM to assess low socioeconomic adults' perceptions of lung cancer and smoking as previously discussed under "knowledge". The benefits of quitting smoking were assessed by asking respondents if quitting would help them save money, feel healthier, live longer, and have fewer hassles from smoking in public. A significant difference was found in perceived benefits of quitting smoking by level of education and smoking status. Current smokers and the least educated perceived fewer benefits to quitting smoking than did former smokers, nonsmokers, and the most educated.

Steptoe et al. (1995) assessed 16,483 students aged 18-30 years from 21 European countries to determine smoking habits, beliefs in the health benefits of not smoking, and levels of risk awareness. A 10-point Likert scale was used to have subjects rate their beliefs in the importance of not smoking. Beliefs in the health benefits of not smoking significantly predicted smoking behavior in all 21 country samples. Smoking prevalence was higher in individuals who did not believe in the health benefits of not smoking.

Beliefs in the benefits of a certain behavior have been found to predict and explain health behaviors. The HBM variable of benefits significantly predicted smoking behavior. Individuals who did not believe in the benefits of not smoking were more likely to be current smokers. Nurses can encourage smoking cessation by teaching individuals the benefits of not smoking.

Summary and Implications for Study

A preventive health action is the recommended behavior that can help prevent disease and illness. Lung cancer and oral/pharyngeal cancer can be prevented primarily by not smoking cigarettes. Lung cancer in particular represents a serious preventable health problem. Nurses can play a significant role in modifying cigarette smoking behavior by discerning what variables influence cigarette smoking. According to the literature, smoking prevalence is lower among older, female, more educated, more acculturated, and married adults. Smoking prevalence was also lower in individuals who were motivated towards a healthy lifestyle, perceived the health benefits of not smoking, and were knowledgeable about cancer risks and the health consequences of cigarette smoking.

Despite the large body of knowledge concerning the negative health consequences of cigarette smoking, expanded research is needed regarding HBM concepts and their relationship to cigarette smoking, especially among the Asian American population. The results from this study can provide a basis for appropriate and meaningful interventions in supporting lifestyle changes for Korean American cigarette smokers.

Research Questions

1. Is there a relationship between Korean American cigarette smoking status and certain demographic variables?

2. Is there a relationship between Korean American cigarette smoking status and knowledge that cigarette smoking is related to lung and oral/pharyngeal cancer?

3. Is there a relationship between Korean American cigarette smoking status and knowledge of cancer risk factors, early cancer warning signs, the health consequences of cigarette smoking, and general cancer beliefs?

4. Is there a relationship between Korean American cigarette smoking status and alcohol use?

5. Is there a relationship between Korean American cigarette smoking status and the perceived benefits of quitting smoking?

Definition of Terms

Modifying factor: demographics. The demographic variables of age, gender, education, acculturation, and marital status are variables that indirectly affect cigarette smoking status by influencing major health beliefs.

Modifying factor: knowledge. Knowledge, an awareness or understanding of the relationship of cigarette smoking to lung cancer and oral/pharyngeal cancer, cancer risk factors, early cancer warning signs, and the health consequences of cigarette smoking, has an indirect effect on cigarette smoking status by influencing health beliefs.

Health motivation. A concern about health which results in positive health behaviors.

Perceived benefits. Benefits are the beliefs that the risk of lung cancer and oral/pharyngeal cancer will be reduced if cigarette smoking is stopped.

Likelihood of action. The likelihood of smoking cessation is dependent on modifying factors, health motivation, and perceived benefits.

CHAPTER THREE

METHODOLOGY

Research Design

A descriptive correlational research design was used to examine cancer health beliefs and knowledge in relationship to Korean American cigarette smoking status (Yu, Liu, Chen, & Kim, 1992). A nonexperimental form of research was chosen to describe the relationships and not to detect a cause-and-effect relationship. A descriptive correlational research design is convenient and efficient for collecting a large amount of data in a short time frame. The major disadvantage of this design is the lack of experimental control which can create difficulty in interpreting the findings.

Sample and Setting

The uptown neighborhoods of Albany Park and Lincoln Square, where the largest concentration of Korean Americans are found in the Chicago area, was the setting for this study (Yu, Liu, Chen, & Kim, 1992). The geographic boundaries of these neighborhoods include Montrose Avenue to the south (4400 block), Foster Avenue to the north (5200 block), Cicero Avenue to the west, and the north branch of the Chicago River to the east. Interviews were conducted in the homes of the subjects.

To be included in the study, subjects needed to be Korean Americans, 40-69 years old, and living either in the Albany Park or Lincoln Square neighborhood. The total

sample consisted of 263 subjects. This sample size allowed for meaningful statistical analysis.

Subjects were chosen by using the two stage probability sampling method. To generate a sampling frame, a list of Korean American household names in the Albany Park and Lincoln Square neighborhoods was obtained from a survey sampling firm. Because many of the households on the list obtained from the sampling firm contained many non-Korean names as well as those who no longer lived in the area, additional lists of Korean names were added from recently published telephone books, a Korean newspaper company, and a Korean community center. A final sampling frame was developed after entering the list of surnames alphabetically into the computer. Then sample households were chosen using a systematic random sampling procedure. Interviewers who were assigned a random list of households to contact were required to first conduct an age screening on the telephone prior to setting up an appointment for an interview since the age of potential respondents was not known.

The final step of the sampling was done by random selection of one of the household members who met the sampling criteria. Interviewers then contacted the eligible subjects by phone to arrange an interview. Of the 504 eligible subjects contacted, interviews were conducted with 263 people (52%). The major reasons for no interview were refusal (n = 98), lack of time due to long hours of work (n = 89), other members in the family did not allow an interview (n = 23), health problems (n = 18), and inability to contact the person after several phone calls (n = 13).

This sampling plan of using the two stage probability sampling method was chosen to select the most accurate and representative sample of Korean Americans. Although a considerable effort was made in obtaining lists of Koreans living in the Albany Park and Lincoln Park neighborhoods, it is possible that not all of the Koreans were on these lists which may alter the generalizability of the results to all Korean Americans.

A total of 263 subjects, 104 males (39.5%) and 159 females (60.5%), participated in this study (Table 1). The subjects ranged in age from 40-69 years. Mean age of the male subjects was 53.1 (SD = 8.4) and 55.7 (SD = 8.1) for female subjects. About 53% of the male subjects and 19.5% of female subjects had more that 12 years of education. The male subjects' mean years of residency in the U.S. was 7.8 Years (SD = 5.7) and 8.2 years (SD = 5.3) for female subjects. About 93% of male subjects and 66.7% of female subjects were married.

The Instrument

The Cancer Control questions used by the National Center for Health Statistics for the 1987 National Health Interview Survey (DHHS, 1989b) was used as the foundation for the development of the instrument, the Asian American Cancer Control Survey (Yu, Kim, Liu, Chen, & Perskey, 1990) (see Appendix A). Permission to utilize data collected from this instrument was obtained from Dr. Katherine Kim. A Korean translation of the instrument was developed in three different phases over a two year period. Dr. Katherine Kim was responsible for overseeing the translation process.

In the beginning phase of instrument development, a hired Korean translator did the initial translation (Yu et al., 1990). The translated version was

Table 1

Demographic Characteristics of Sample by Gender

Characteristics	Male (n = 104)	Female (n = 159)
Age (years)		
M	53.1	55.7
SD	8.4	8.1
Range	40 - 69	40 - 69
Education (%)		
≤ 12 years	47.1**	80.5
> 12 years	52.9	19.5
Years of residency in U.S.		
M	7.8	8.2
SD	5.7	5.3
Marital status (%)		
Married	93.3**	66.7
Not married	6.7	33.3

Note. Total percentage may not add to 100 due to rounding.

**$p < .01$ for comparing male and female.

scrutinized and backtranslated by a team of bilingual staff. Each revision of the instrument was proofread for errors.

For the middle phase of instrument development, the translated instrument was read aloud by the research staff and a variety of persons trained in diverse disciplines to ensure that the questions were readily understood (Yu, Kim, Liu, & Chen, 1991). Deeply

probing how a respondent understood concepts in the questionnaire also helped to clarify questions. Monolingual and bilingual speakers reviewed the questions to detect non-Korean sentence structures and to ensure that the Korean version matched the original English version of the instrument. Questionnaire Design Research Laboratory methods including the think-aloud method, the paraphrasing method, and retrospective protocols method were utilized in pretesting the instrument. These methods were helpful in identifying unclear questions, questions that were difficult to translate, and problems with skip patterns.

During the final phase of instrument development, parallel pretests and field tests were performed (Yu, Liu, Chen, & Kim, 1992). Mock interviews were conducted among the research team, friends and close acquaintances, and then with individuals unfamiliar with the survey in order to identify any further conceptual or translation issues. After problems and concerns were identified and corrected, the Asian American Cancer Control survey was finalized. The reliability and validity of the survey were not reported.

The Asian American Cancer Control Survey assessed respondents acculturation, cancer beliefs, medical care, food knowledge, general cancer knowledge and attitudes, cancer screening knowledge and practices, smoking habits and other tobacco use, occupational exposure, and rent. For the purposes of this study, only some of the questions from the survey were examined.

This study examines one smoking behavior, cigarette smoking status, which is the dependent variable. Never smokers are defined to be those who either never smoked more that 100 cigarettes in their lifetime or who have smoked more than 100 cigarettes

but never smoked regularly. Former smokers are those who have smoked more than 100 cigarettes but do not currently smoke. Current smokers are those who have smoked more than 100 cigarettes and still smoke.

The independent variables of modifying factors (demographic variables and cancer knowledge), health motivation, and perceived benefits were also examined in the survey. For the modifying factor of demographic variables, questions sought information about the respondents age, gender, spoken English proficiency, years of education, years of residency in the U.S., and marital status. For the purposes of data analysis, the demographic variables were each dichotomized.

For age, respondents were asked to give their date of birth. From this information, age was dichotomized into two groups, 40-54 years, and 55-69 years. For education, an individual was considered to have less than or equal to 12 years of education if they had no formal education, an informal education only, elementary education, or high school education up to or equal to 12 years. An individual was considered to have more that 12 years of education if they had completed at least one year of college or one year of post-junior or post-senior high vocational school. Spoken English proficiency was determined by asking respondents how well they spoke English. This variable was dichotomized into moderately well/well and not at all/poorly. For years of residency in the U.S., respondents were asked when they came to the U.S. to live. From this information, this variable was dichotomized into two groups, less than or equal to 10 years and more than 10 years. The variable of marital status was dichotomized by combining widowed,

divorced, separated, never married, and cohabiting into the not married group. The married group either did or did not have a spouse in the household on a regular basis.

For the modifying factor of knowledge, several questions were asked. Respondents were asked if cigarette smoking is related to lung cancer and related to oral/pharyngeal cancer. A correct answer (yes) was given a score of one, and incorrect answers (no, don't know) were given a score of zero.

Knowledge of cancer risk factors was determined by asking respondents what things may increase a person's chances of getting cancer. The interviewer prompted responses from 19 true and false items. Correct answers were given a score of one and incorrect answers a score of zero. For example, the interviewer would ask a respondent if exposure to x-rays would increase a person's chances of getting cancer. This is a true statement and if the respondent replied yes, a score of one would be given. The range of total possible scores was 0-19. For the purpose of data analysis, those respondents able to identify 10 or more correct answers were considered more knowledgeable than respondents who identified less than 10 correct answers.

Knowledge of early cancer warning signs was determined by asking the open-ended question "What do you think are the warning signs or symptoms of cancer?" Unlike the previous question about cancer risk factors, responses were not prompted by the interviewer. The questionnaire listed 17 possible true and false items for the interviewer to record responses. Only eight of the responses were true warning signs of cancer. The American Cancer Society identifies seven early cancer warning signs (Baird, 1991), but for this study, indigestion and difficulty swallowing were two separate items.

A score of one was given for correct answers and a score of zero for incorrect answers. For example, if a respondent replied that a change in bowel or bladder habits and body coldness were signs of cancer, a score of one would be given since only a change in bowel or bladder habits is correct. The range of total possible scores was 0-8. For the purpose of data analysis, respondents identifying one or more of the early cancer warning signs were included in the limited knowledge group. Respondents who were unable to name any warning signs were included in the no knowledge group.

Knowledge of the health consequences of smoking was assessed by asking six questions about cigarette smoking and health based on a five-point Likert scale that ranged from strongly disagree to strongly agree. In tabulating the score for analysis, a response of strongly agree was given a score of five, agree a score of four, no opinion a score of three, disagree a score of two, and strongly disagree a score of one, with the exception of one negatively worded item for which the scoring was reversed. The range of total possible scores was 6-30. For the purpose of data analysis, a respondent was considered more knowledgeable if the total score was greater than 25 and less knowledgeable if the total score was less than or equal to 25.

General cancer beliefs was assessed by asking seven questions about common misconceptions of cancer using a four-point Likert scale. Of the seven statements, six were false. A score of zero was given for incorrect responses (strongly believed, moderately believed, don't know) and a score of one for the correct response (not believed at all). Responses for the one true item were scored differently. A score of zero was given for incorrect responses (not at all believed, don't know) and a score of one for

correct responses (strongly believed, moderately believed). The range of total possible scores was 0-7. For the purpose of data analysis, a respondent was considered to have more misconception about cancer if the total score ranged from 0-5, and less misconception is the score ranged from 6-7.

For health motivation, alcohol use was assessed by asking respondents if they never drank, used to drink, or are current drinkers. For perceived benefits, respondents were asked if they believed that stopping cigarette smoking reduces the risk of getting lung cancer and reduces the risk of getting oral/pharyngeal cancer. A correct answer (yes) was given a score of one, and incorrect answers (no, don't know) were given a score of zero.

Procedure

Permission to collect data was obtained from the University of Illinois at Chicago (UIC) (Yu, Liu, Chen, & Kim, 1992) and from the Human Research Review Committee of Grand Valley State University (See Appendix B). Before data were collected, interviewers needed to be recruited and extensively trained. Interviewers were bilingual graduate students from UIC.

Interviewer training involved reviewing the interview process, including the research purpose and significance, communication pathways between interviewers, roles and responsibilities of the interviewer, form completion, and personal safety (Yu, Liu, Chen, & Kim, 1992). Performing several mock interviews was done extensively during interviewer training. Eighteen of the 33 bilingual Korean interviewers who were trained

were utilized to conduct interviews. All interviewers were required to sign an affidavit of confidentiality prior to employment.

All major Korean newspapers and prominent social service agencies were notified regarding the survey's purpose, sponsorship, and investigators a week before the interviews were to be conducted (Yu, Liu, Chen, & Kim, 1992). Letters were sent to all households in the sampling list notifying them that they would be contacted by phone and one person in the age range of 40-69 years would be randomly chosen for a face-to-face interview. Respondents were told that the interviews would be confidential and anonymity would be guaranteed. Respondents were also informed that their participation in the study was voluntary and that they had the right to withdraw from the study at any time. A phone number was also listed in case they had any difficulty or questions about the study.

Quality Checks

After an interview was completed, a post card was given for each respondent to confirm the time and date of interview, verify his/her name and address, and to rate his/her experience of being interviewed so that the quality of the interviews could be verified (Yu, Liu, Chen, & Kim, 1992). Also, each completed interview schedule was manually inspected by investigators and the rest of the research team, but no interviewer was allowed to verify his/her own interviews. As another check on the quality of data, ten percent of all completed interviews which did not give the appearance of response inconsistencies, were verified by phone by selectively checking on sociodemographic characteristics and selected questions from the instrument.

CHAPTER FOUR

RESULTS

Data entry workers, all graduate students at the University of Illinois at Chicago (UIC), entered data into a specific software program that controls data entry errors (Yu, Liu, Chen, & Kim, 1992). Data entry workers who were also interviewers were not allowed to enter in their own completed interview record. Data were then entered into the Statistical Analysis System (SAS) for data analysis. The descriptive statistics of frequencies and chi-square are reported here. The chi-square analysis for the female sample, however, may not be valid due to the small sample sizes of former smokers and current smokers.

The dependent variable, cigarette smoking status, was measured at the nominal level. From the sample of 263 Korean Americans aged 40-69, 51 (19.4%) were current smokers, 46 (17.5%) were former smokers, and 166 (63.1%) were never smokers. From the sample of 104 males, 40 (38.5%) were current smokers, 40 (38.5%) were former smokers, and 24 (23%) were never smokers. The independent variables of modifying factors (demographic variables and cancer knowledge), health motivation, and perceived benefits, also measured at the nominal level, will be described in detail according to each research question.

Research Question #1

Research question number one states, "Is there a relationship between Korean American cigarette smoking status and certain demographic variables?" A summary of the data on demographic variables according to cigarette smoking status for the total sample (N = 263) appears in Table 2. Data on demographic variables for males (n = 104) are reported in Table 3, and for females (n = 159), the data are shown in Table 4.

The first demographic variable reported is age. Of the 125 respondents from the total sample age 40-54, 24.0% (n = 30) were current smokers. Of the 138 respondents from the total sample age 55-69, 15.2% (n = 21) were current smokers. Chi-square analysis of the total sample (Table 2), and of the male and female samples separately (Tables 3 and 4), did not indicate a significant relationship between age and cigarette smoking status ($p > .05$) although the trend appears to be that cigarette smoking declined with age.

For gender, a statistically significance was noted between males and females according to cigarette smoking status ($p < .01$). Males were more likely to smoke than females. Of the 104 males, 38.5% (n = 40) were current smokers compared to only 6.9% (n = 11) of the 159 females (Table 2).

For education, a statistical significance was also noted ($p < .01$) for the total sample (Table 2). Respondents who were more educated were more likely to be current smokers. Among the 86 respondents who had greater than 12 years of education, 23.3% (n = 20) were current smokers compared to 17.5% (n = 31) of the 177 respondents who had 12 years of education or less. For the male sample (Table 3) the relationship between

Table 2

Percent of Never, Former, and Current Smokers Among Korean American Males and Females by Selected Demographic Variables (N = 263)

Characteristics	n	Never Smoker (n = 166)		Former Smoker (n = 46)		Current Smoker (n = 51)	
		n	%	n	%	n	%
Age							
40-54	125	75	60.0	20	16.0	30	24.0
55-69	138	91	65.9	26	18.8	21	15.2
Gender***							
Male	104	24	23.1	40	38.5	40	38.5
Female	159	142	89.3	6	3.8	11	6.9
Education**							
≤ 12 years	177	123	69.5	23	13.0	31	17.5
> 12 years	86	43	50.0	23	26.7	20	23.3
Spoken English proficiency**							
Not at all/poorly	163	115	70.6	19	11.7	29	17.8
Moderately well/well	100	51	51.0	27	27.0	22	22.0
Years of residency in U.S.***							
< 10 years	166	93	56.0	29	17.5	44	26.5
≥ 10 years	97	73	75.3	17	17.5	7	7.2
Marital status*							
Married	203	119	58.6	40	19.7	44	21.7
Not married	60	47	78.3	6	10.0	7	11.7

Note. Total percentage may not add to 100 due to rounding.

*p < .05, **p < .01, ***p < .001 based on chi-square tests.

Table 3

Percent of Male Korean American Never, Former, and Current Smokers by Selected Demographic Variables (n = 104)

Characteristics	n	Never Smoker (n = 24)		Former Smoker (n = 40)		Current Smoker (n = 40)	
		n	%	n	%	n	%
Age							
40-54	57	13	22.8	19	33.3	25	43.9
55-69	47	11	23.4	21	44.7	15	31.9
Education							
≤ 12 years	49	10	20.4	17	34.7	22	44.9
> 12 years	55	14	25.5	23	41.8	18	32.7
Spoken English proficiency							
Not at all/poorly	39	8	20.5	13	33.3	18	46.2
Moderately well/well	65	16	24.6	27	41.5	22	33.9
Years of residency in U.S.**							
< 10 years	74	13	17.6	26	35.1	35	47.3
≥ 10 years	30	11	36.7	14	46.7	5	16.6
Marital status							
Married	97	21	21.7	38	39.2	38	39.2
Not married	7	3	42.9	2	28.6	2	28.6

Note. Total percentage may not add to 100 due to rounding.

**p < .01 based on chi-square tests.

Table 4

Percent of Female Korean American Never, Former, and Current Smokers by Selected Demographic Variables (n = 159)

Characteristics[a]	n	Never Smoker (n = 142)		Former Smoker (n = 6)		Current Smoker (n = 11)	
		n	%	n	%	n	%
Age							
40-54	68	62	91.2	1	1.5	5	7.4
55-69	91	80	87.9	5	5.5	6	6.6
Education							
≤ 12 years	128	113	88.3	6	4.7	9	7.0
> 12 years	31	29	93.6	0	0.0	2	6.5
Spoken English Proficiency							
Not at all/poorly	124	107	86.3	6	4.8	11	8.9
Moderately/well	35	35	100.0	0	0.0	0	0.0
Years of Residency in U.S.							
< 10 years	92	80	87.0	3	3.3	9	9.8
≥ 10 years	67	62	92.5	3	4.5	2	3.0
Marital Status							
Married	106	98	92.5	2	1.9	6	5.7
Not married	53	44	83.0	4	7.6	5	9.4

Note. Total percentage may not add to 100 due to rounding.

[a] All chi-square and Fisher's exact tests are not significant ($p > .05$).

education and smoking status was not significant ($p > .05$), but the trend appears to be that the prevalence of cigarette smoking was higher among those with less than or equal to 12 years of education. Also when the data were analyzed for females (Table 4), no statistically significant relationship ($p > .05$) was noted.

Concerning spoken English proficiency, respondents who could speak English proficiently were more likely to be current smokers. Among the 100 respondents of the total sample who could speak English moderately well to well, 22.0% ($n = 22$) were current smokers, compared to 17.8% ($n = 29$) of the 163 respondents who could speak English poorly or not at all. The relationship between spoken English proficiency and smoking status was significant ($p < .01$) for the total sample (Table 2), but when the data were analyzed separately for males and females (Tables 3 and 4), no statistical significance was noted for either gender ($p > .05$). It is of interest to note that for the male sample (Table 3), the trend indicated that smoking prevalence was higher among those with poorer spoken English proficiency.

With respect to years of residency in the U.S., a statistically significant relationship was noted in the total and male samples ($p < .01$) (Tables 2 and 3), but not for the female sample ($p > .05$) (Table 4). Of the 97 respondents from the total sample who lived in the U.S. for 10 years or more, 7.2% ($n = 7$) were current smokers compared to 26.5% ($n = 44$) of the 166 respondents who lived in the U.S. for less than 10 years. The results for males were similar (Table 3), indicating that male respondents who lived in the U.S. for 10 or more years were less likely to be current smokers.

Marital status, was statistically significant among the total sample

($p < .05$) (Table 2), but not for males or females (Tables 3 and 4) when analyzed separately ($p > .05$). Respondents who were married were more likely to be current smokers. For the 60 respondents who were not married, 11.7% ($n = 7$) were current smokers compared to 21.7% ($n = 44$) of the 203 respondents who were married.

Research Question #2

The second research question states, "Is there a relationship between Korean American cigarette smoking status and knowledge that cigarette smoking is related to lung cancer and related to oral/pharyngeal cancer?" A summary of the data appears in Table 5 for the total sample and Table 6 for the male sample. Statistical analysis of female data were not performed due to the very small number of former and current smokers. About 6.5% ($n = 17$) of respondents did not know that cigarette smoking is related to lung cancer. On the other hand, 29.7% ($n = 78$) of respondents were not aware that smoking is related to oral/pharyngeal cancer. The relationship between cigarette smoking and knowledge that smoking is related to lung cancer and oral/pharyngeal cancer was not statistically significant ($p > .05$) for either the total sample (Table 5) or the male sample (Table 6).

Research Question #3

Research question number three states, "Is there a relationship between Korean American cigarette smoking status and knowledge of cancer risk factors, early cancer warning signs, the health consequences of cigarette smoking, and general cancer beliefs?" A summary of the data appears in Table 5 for the total sample, and Table 6 presents data

Table 5

Percent of Never, Former, and Current Smokers Among Korean American Males and Females by Knowledge and Beliefs about Smoking and Cancer (N = 263)

Knowledge and Beliefs	n	Never Smoker (n = 166) n	%	Former Smoker (n = 46) n	%	Current Smoker (n = 51) n	%
Smoking is related to lung cancer							
Yes	246	156	63.4	43	17.5	47	19.1
No/Don't know	17	10	58.8	3	17.7	4	23.5
Smoking is related to throat/mouth cancer							
Yes	185	116	62.7	35	18.9	34	18.4
No/Don't know	78	50	64.1	11	14.1	17	21.8
Cancer risk factors							
More knowledge	130	74	56.9	27	20.8	29	22.3
Less knowledge	133	92	69.2	19	14.3	22	16.5
Early cancer signs							
Limited knowledge[a]	70	43	61.4	14	20.0	13	18.6
No knowledge	193	123	63.7	32	16.6	38	19.7
Health consequences of smoking**							
More knowledge	179	119	66.5	36	20.1	24	13.4
Less knowledge	84	47	56.0	10	11.9	27	32.1
General cancer beliefs							
More misconception	164	104	63.4	25	15.2	35	21.3
Less misconception	99	62	62.6	21	21.2	16	16.2

Note. Total percentage may not equal 100 due to rounding.

[a] Limited knowledge group includes subjects identifying one or more of the early cancer warning signs

**$p < .01$ based on chi-square tests.

Table 6

Percent of Korean American Male Never, Former, and Current Smokers by Knowledge and Beliefs about Smoking and Cancer (n = 104)

Knowledge and Beliefs	n	Never Smoker (n = 24)		Former Smoker (n = 40)		Current Smoker (n = 40)	
		n	%	n	%	n	%
Smoking is related to lung cancer							
Have knowledge	99	24	24.2	38	38.4	37	37.4
No knowledge	5	0	0.0	2	40.0	3	60.0
Smoking is related to throat/mouth cancer							
Have knowledge	73	18	24.7	30	41.1	25	34.3
No knowledge	31	6	19.4	10	32.3	15	48.4
Cancer risk factors							
More knowledge	57	14	24.6	22	38.6	21	36.8
Less knowledge	47	10	21.3	18	38.3	19	40.4
Early cancer signs							
Limited knowledge[a]	28	5	17.9	13	46.4	10	35.7
No knowledge	76	19	25.0	27	35.5	30	39.5
Health consequences of smoking**							
More knowledge	67	18	26.9	30	44.8	19	28.4
Less knowledge	37	6	16.2	10	27.0	21	56.8
General cancer beliefs							
More misconception	64	14	21.9	21	32.8	29	45.3
Less misconception	40	10	25.0	19	47.5	11	27.5

Note. Total percentage may not equal 100 due to rounding.

[a] Limited knowledge group includes subjects identifying one or more of the early cancer warning signs

**$p < .01$ based on chi-square tests.

for the male sample. Female data analysis are excluded due to the small sample size of former and current smokers.

Knowledge of general cancer risk factors was determined by asking respondents what things increase a person's chances of getting cancer. Those respondents who received a score of 10 or higher were considered to be more knowledgeable than respondents who received a score of less than 10. For the total sample (N = 263), 49.4% (n = 130) were more knowledgeable and 50.6% (n = 133) were less knowledgeable about cancer risk factors. A statistically significant relationship between cigarette smoking status and knowledge of cancer risk factors was not noted ($p > .05$) for either the total (Table 5) or the male sample (Table 6).

Knowledge of early cancer warning signs was determined by asking respondents to identify the early warning signs of cancer. Respondents who had limited knowledge were able to identify one or more of the early cancer warning signs. Respondents who had no knowledge were unable to name any of the warning signs. For the total sample (N = 263), 26.6% (n = 70) of the respondents had limited knowledge and 73.4% (n = 193) had no knowledge of early cancer warning signs. The relationship between cigarette smoking status and knowledge of early cancer warning signs was not statistically significant ($p > .05$) for either the total (Table 5) or the male sample (Table 6).

Knowledge about the health consequences of smoking was determined by asking respondents six questions about smoking and health using a five point Likert scale. A high score indicated more knowledge and a low score indicated less knowledge about the health consequences of smoking. Respondents who were less knowledgeable about how

cigarette smoking can affect health were more likely to be current smokers. Of the 84 respondents from the total sample who had less knowledge about the health consequences of cigarette smoking, 32.1% (n = 27) were current smokers compared to the 13.4% (n = 24) of respondents who had more knowledge. The relationship between cigarette smoking status and knowledge of the health consequences of smoking was statistically significant for the total sample ($p < .01$) (Table 5) and for the male sample ($p < .05$) (Table 6).

General cancer beliefs was assessed by asking seven questions about cancer beliefs on a four point Likert-type scale. A high score indicated less misconception about cancer and a low score indicated more misconception. For the total sample (N = 263), 37.6% (n = 99) of the respondents had less misconception and 62.4% (n = 164) had more misconception about cancer. The relationship between cigarette smoking status and general cancer beliefs was not statistically significant ($p > .05$) for either the total sample (Table 5) or the male sample (Table 6).

Research Question #4

The fourth research question states, "What is the relationship between Korean American cigarette smoking status and alcohol use?" Alcohol use was assessed by asking respondents if they never drank, used to drink, or are current drinkers (Table 7). Data regarding alcohol use among females are not reported because of the small sample size of former and current smokers. Current drinkers were more likely to be current smokers than never drinkers for both the total and male samples. Among current Korean

Table 7

Percent of Never, Former, and Current Smokers Among Korean Americans by Alcohol Use (N = 263)

Alcohol Use	n	Never Smoker (n = 166)		Former Smoker (n = 46)		Current Smoker (n = 51)	
		n	%	n	%	n	%
				Total Sample*** (N = 263)			
Never	140	121	86.4	7	5.0	12	8.6
Former	42	17	40.5	16	38.1	9	21.4
Current	81	28	34.6	23	28.4	30	37.0
				Male Sample** (n = 104)			
Never	20	11	55.0	3	15.0	6	30.0
Former	29	7	24.1	14	48.3	8	27.6
Current	55	6	10.9	23	41.8	26	47.3

Note. Total percentage may not equal 100 due to rounding.

**p < .01, ***p < .001 based on chi-square tests.

American male drinkers, 47.3% (n = 26) were current smokers compared to 30.0% (n = 6) of never drinkers who were current smokers. The relationship of cigarette smoking status and alcohol use was statistically significant using chi-square analysis ($p < .01$) for the total and male samples (Table 7).

Research Question #5

Research question number five states, "Is there a relationship between Korean American cigarette smoking status and the perceived benefits of quitting smoking?" Data regarding the perceived benefits for the total and the male sample appear in Table 8.

Table 8

Percent of Never, Former, and Current Smokers Among Korean Americans by Perceived Benefits of Quitting Smoking (N = 263)

Perceived Benefit[a]	n	Never Smoker (n = 166) n	%	Former Smoker (n = 46) n	%	Current Smoker (n = 51) n	%
				Total Sample (N = 263)			
Stop smoking reduces lung cancer risk							
Yes	232	148	63.8	41	17.7	43	18.5
No/Don't know	31	18	58.1	5	16.1	8	25.8
Stop smoking reduces throat/mouth cancer risk							
Yes	173	106	61.3	34	19.6	33	19.1
No/Don't know	90	60	66.7	12	13.3	18	20.0
				Male Sample (n = 104)			
Stop smoking reduces lung cancer risk							
Yes	94	24	25.5	36	38.3	34	36.2
No/Don't Know	10	0	0.0	4	40.0	6	60.0
Stop smoking reduces throat/mouth cancer risk							
Yes	72	18	25.0	29	40.3	25	34.7
No/Don't Know	32	6	18.8	11	34.4	15	46.9

Note. Total percentage may not equal 100 due to rounding.

[a] All chi-square and Fisher's exact tests are not significant ($p > .05$).

Respondents were asked if they believed that stopping cigarette smoking reduces the risk of getting lung cancer and reduces the risk of getting oral/pharyngeal cancer. Statistical

analysis was not performed for the female sample due to the very small number of former and current smokers. For the total sample (N = 263), 11.8% (n = 31) did not believe or did not know that stopping cigarette smoking would reduce the risk of getting lung cancer, while 34.2% (n = 90) of respondents did not know or did not believe that stopping smoking would reduce the risk of getting oral/pharyngeal cancer. No statistically significant relationship between cigarette smoking status and the perceived benefits of quitting smoking was noted ($p > .05$) for the either the total or the male sample (Table 8).

Summary

This chapter presented the data analysis and statistical outcomes of this study. The descriptive statistics of frequencies and chi-square analysis were utilized in summarizing the data of the study. Given the results of the data analysis, a statistically significant relationship was noted between Korean American cigarette smoking status and the demographic variables of gender, education, spoken English proficiency, years of residency in the U.S., and marital status for the total sample. However, when the data were analyzed separately for males and females, none of these statistically significant relationships occurred in either the male or female samples, with the exception of years of residency in the U.S. for males. Male respondents who lived in the U.S. for longer than or equal to 10 years were less likely to be current smokers. The relationship between cigarette smoking status and knowledge of the health consequences of smoking and alcohol use were statistically significant for the total and male samples, but not for the female sample.

The relationships between cigarette smoking status and the independent variables of general cancer beliefs, knowledge of early cancer warning signs, and knowledge that smoking is related to oral/pharyngeal cancer were not statistically significant but the findings are important. Overall, many Korean Americans had misconceptions about cancer. Most Korean Americans could not identify a single early cancer warning sign. And many were not very aware that smoking is related to oral/pharyngeal cancer.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

Discussion

The purpose of this study was to describe cancer health beliefs and knowledge in relationship to Korean American cigarette smoking status. The following will discuss the results in context of the five research questions after examining cigarette smoking status.

Cigarette Smoking Status. For the current study, 19.4% of all respondents, 38.5% of males, and 6.9% of females were current smokers. These findings are comparable to other studies about smoking prevalence among Asian Americans (Burns & Pierce, 1993; CDC, 1992a; 1992b; 1994; Jenkins et al., 1990). In comparison to the results of the DHHS (1989b) study, smoking prevalence among Korean American females was lower than for American females overall (6.9% vs. 26.5%), smoking prevalence was higher for Korean American males than for American males overall (38.5% vs. 31.2%) and smoking prevalence for all Korean Americans was less than for all Americans overall (19.4% vs. 28.8%).

Research Question #1. The relationship between Korean American cigarette smoking status and the modifying factor of demographic variables was found to be statistically significant for gender ($p < .01$), education ($p < .01$), spoken English proficiency ($p < .01$), years of residency in the U.S. ($p < .01$), and marital status ($p < .05$)

among the total sample (Table 2). Of significant interest is the fact that, although these relationships were significant for the total sample, statistical significance was not apparent when the data were analyzed separately for males and females (Tables 3 and 4), with the exception of years of residency in the U.S. for males. By removing the effect that gender had on the variables, the data analysis no longer indicated statistical significance.

Although no statistical significance was noted for age ($p > .05$), the data did show a decreasing trend in smoking prevalence as age increased. This was true for the total and both the male and female samples in this study and the DHHS (1989b) study. Older smokers may be more likely to develop diseases such as lung cancer and oral/pharyngeal cancer than younger smokers which could influence their decision to quit smoking.

A statistically significant relationship ($p < .01$) was noted between cigarette smoking status and gender (Table 2). The present study found that 38.5% of Korean American males and 6.9% of Korean American females were current smokers. These percentages are consistent with those reported by Burns and Pierce (1992) which indicated that Korean American males in California smoke significantly more than Korean American females (35.8% vs. 13.6%). However, the percentage of Korean American male current smokers is higher than those reported for White American males in California which is 24.8% (Burns & Pierce, 1992), and higher for American males overall, which, according to the data from DHHS (1989b), is 31.2%. It is important to note that subjects from the DHHS (1989b) study were 18 years and older while the subjects for this study were 40-69 years old. Therefore the results of these studies may not be directly

comparable. As both male and female Korean Americans become more acculturated to the U.S., they may adopt smoking behaviors similar to other Americans.

For the total sample (Table 2), respondents who were more educated were more likely to be current smokers ($p < .01$). This finding is not consistent with other studies (DHHS, 1989b; Pierce et al., 1989a, 1989b; Manfredi et al., 1992; CDC 1994) in which smoking prevalence declined with higher education. The variable of education may be biased by the gender effect since the education level of Korean American males is higher than for Korean American females and more Korean American males were current smokers compared to Korean American females. Although the relationship between cigarette smoking status and education was not significant ($p > .05$) for the male sample, the trend appeared to indicate that smoking prevalence for males declined with higher education (Table 3).

Acculturation, the adaptation that occurs as a person adjusts to a new culture, was studied here by examining spoken English proficiency and years of residency in the U.S. For the total sample (Table 2), respondents who could speak English proficiently were more likely to be current smokers ($p < .01$). This finding is not consistent with other studies (Jenkins et al., 1990; CDC, 1992a; Chen et al., 1993) in which smoking prevalence was lower among those who could speak English proficiently. The relationship between cigarette smoking status and spoken English proficiency was not statistically significant ($p. > .05$) when the male and female samples (Tables 3 and 4) were analyzed separately. Although for the male sample, the trend appeared to be that smoking prevalence was lower among those who could speak English well to moderately well. Again, the variable

of spoken English proficiency may be biased by the gender effect. For the total and male samples (Tables 2 and 3), respondents who lived in the U.S. for 10 or more years were less likely to be current smokers. Although the results cannot be compared with those of the DHHS (1989b) because these aspects of acculturation were not examined, other studies did have similar findings concerning years of residency in the U.S. (Jenkins et al., 1990; CDC, 1992a; Chen et al., 1993).

Marital status was significantly related to cigarette smoking behaviors for the total sample only ($p < .05$) (Table 2). Respondents who were married were more likely to be current smokers. This finding was not consistent with other studies (DHHS, 1989b; Broman, 1993) in which smoking prevalence was lower among those who were married. Again, the variable of marital status may be biased by the gender effect since more males were married than females and more males were current smokers (Table 1).

The notable finding in regard to the relationship of demographic variables to cigarette smoking status was the effect of gender on the demographic variables. Education, spoken English proficiency, years of residency in the U.S., and marital status were all statistically significant in relationship to smoking status for the total sample. After the data for males and females were analyzed separately, only years of residency in the U.S. for the male sample was statistically significant. The reason that education, spoken English proficiency, and years of residency in the U.S. were statistically significant for the total sample may be due to the fact that more Korean American males had a higher level of education and therefore could speak English more proficiently. Males also may be more likely to have the financial resources and family support necessary to attend college.

Research Question #2. The relationship between Korean American cigarette smoking status and knowledge that cigarette smoking is related to lung cancer and related to oral/pharyngeal cancer was not statistically significant ($p > .05$) for either the total or male samples (Tables 5 and 6). Only a small percentage of respondents, 6.5% from the total sample and 4.8% from the male sample, stated that either cigarette smoking is not related to lung cancer or they did not know that smoking was related to lung cancer. Because of these small percentages, the statistical tests may not be valid. These results were comparable to the 5.6% of all respondents and 5.5% of male respondents in the DHHS (1989b) study. A higher percentage of respondents, 29.7% of all respondents and 29.8% of male respondents, were not aware or did not know that cigarette smoking is related to oral/pharyngeal cancer. These results were higher than the 10.7% of all respondents and 11.3% of male respondents in the DHHS (1989b) study who did not know or believe that smoking is related to oral/pharyngeal cancer.

Smoking prevalence was higher among respondents who did not know that smoking is related to lung cancer and oral/pharyngeal cancer. This finding is similar to other studies which reported that smoking prevalence was higher among respondents who were not aware that smoking may cause cancer (Jenkins et al., 1990; Brownson et al., 1992; Chen et al., 1993). Having knowledge about smoking and cancer risk is apparently not enough of a reason to motivate smoking cessation. Cigarette smoking is a behavior that is not influenced by knowledge alone. Individuals may know the risks of cigarette smoking but may not view themselves as susceptible to developing cancer, and therefore they continue to smoke.

Research Question #3. The relationship between Korean American cigarette smoking status and knowledge of cancer risk factors was not statistically significant ($p > .05$) for either the total or male samples (Tables 5 and 6). The interviewer prompted responses from a list of 19 true and false items. Respondents who received a score of 10 or greater, which was 49.4% of the total sample and 54.8% of the male sample, were considered more knowledgeable about cancer risk factors.

The relationship between Korean American cigarette smoking status and knowledge of early cancer warning signs was not statistically significant ($p > .05$) for either the total or male samples. Knowledge of early cancer warning signs was very limited. Approximately 73% of all respondents and male respondents were unable to name a single early cancer warning sign. This finding may be partly due to the nature of the question. The respondent had to identify the early warning cancer signs without prompting from the interviewer.

Knowledge of the health consequences of smoking was statistically significant according to smoking behaviors for both the total ($p < .01$) and the male samples ($p < .05$). Respondents who were less knowledgeable about how cigarette smoking can affect health were more likely to be current smokers. For the total sample, 68.1% ($n = 179$) were more knowledgeable and 31.9% ($n = 84$) were less knowledgeable about the health consequences of cigarette smoking. Even though comparison to the DHHS (1989b) study cannot be made directly since the frequencies were reported for each of the six questions independently instead of together as they were for this study, the results were similar for the two studies.

The relationship between Korean American cigarette smoking status and general knowledge of cancer was not statistically significant ($p > .05$) for either the total or male samples. Approximately 62% of all respondents and male respondents had more misconception about cancer. Again, comparison of the results to the DHHS (1989b) study is limited since all questions were analyzed together for the current study.

Research Question #4. The relationship between Korean American cigarette smoking status and alcohol use was statistically significant ($p > .01$) for both the total and male samples (Table 7). Current drinkers were significantly more likely to be current smokers than never drinkers. Thirty-seven percent of current drinkers from the total sample and 47.3% of current drinkers from the male sample were current smokers. These results are not surprising and are confirmed in the literature (Patterson et al., 1994; Woodward et al., 1994; Willard & Schoenborn, 1995). Current drinkers may not be motivated towards a healthy lifestyle and therefore may be likely to engage in other unhealthy behaviors such as smoking cigarettes.

Research Question #5. The relationship between Korean American cigarette smoking status and the perceived benefits of stopping smoking was not statistically significant ($p > .05$) for either the total or the male samples (Table 8). The results were surprising though. The DHHS (1989b) study reported that 10.1% of all respondents and 8.7% of male respondents did not know or did not believe that stopping cigarette smoking would reduce the risk of lung cancer compared to 11.8% of all respondents and 7.7% of male respondents for the current study. Also the DHHS (1989b) study reported that 8.5% of all respondents and 7.7% of male respondents did not know or did not believe that

stopping cigarette smoking would reduce the risk of oral/pharyngeal cancer. These percentages are much lower than those reported for the current study which were 34.2% of all respondents and 30.8% of male respondents.

Perhaps the reason for less awareness about oral/pharyngeal cancer compared to lung cancer is because fewer people are diagnosed and fewer people die from oral/pharyngeal cancer than for lung cancer (Parker et al., 1997). Also, being aware of the benefits of smoking cessation is apparently not enough of a motivator for current smokers to quit. Cigarette smoking is a behavior that is not influenced by beliefs alone.

Limitations

Subjects for this study were chosen by using the two stage probability sampling method to select the most accurate and representative sample of Korean Americans in the Chicago area. Although considerable effort was made in controlling this threat to external validity by obtaining lists of Koreans living in the specified area, it is possible that not all Koreans were on these lists. The results therefore may not be generalized for all Korean Americans.

The sample size for female never smokers was 142, but only 6 for former smokers and 11 for current smokers. These small samples of former and current smokers did not allow for meaningful statistical analysis. Often 33% or more of the cells that were analyzed using the chi-square test had an expected frequency of less than five, producing results that may be invalid.

The data for this study were analyzed using bivariate analysis. Although an attempt was made to remove the effect of gender on the other variables, the effect of other

demographic variables were not removed. Therefore the interaction effect among the demographic variables were not controlled.

Two possible sources of measurement error, instrument clarity and administration variations, are also study limitations. Although the instrument went through an extensive translation from the English to the Korean language, it is possible that the Korean translation still had questions that were not clear or could be easily misunderstood. Also, eighteen different interviewers conducted interviews. It is possible that not all the interviewers administered the survey in the same manner despite comprehensive interviewer training. For example, an interviewer may reword a question or probe for answers improperly.

Social desirability response set bias may have influenced the results. Many people are aware of the negative connotations of cigarette smoking. Respondents may not have told interviewers their true smoking status in order to present an ideal image of themselves.

Implications

The results of this study are important. Information about how cancer knowledge and beliefs of Korean Americans impacts their cigarette smoking behaviors has been revealed. This knowledge has implications for nursing. If a nurse assesses a Korean American patient, the typical current smoker will likely be a young, single male who has not lived in the U.S. for very long, speaks a little English, and has a high school education or less. Also the typical Korean American smoker is less likely to live a healthy lifestyle and is less likely to be aware of the health consequences of cigarette smoking. With this

knowledge, the nurse can focus on certain areas of patient education such as the risk of developing lung cancer and oral/pharyngeal cancer, how cigarette smoking affects their health and those around them, and the importance of living a healthy lifestyle. Many Korean Americans had a notably high percentage of misconceptions about cancer and had very limited knowledge about early cancer warning signs. Also, Korean Americans had limited awareness that cigarette smoking is related to oral/pharyngeal cancer. Health education is certainly needed in these areas. For Korean Americans with poor spoken English proficiency, a bilingual translator and teaching materials in Korean should be made available.

But as this study indicated, even though many current smokers were aware of the health problems associated with cigarette smoking, they continued to smoke. The nurse will need to assess a current smokers reasons for smoking, and if they attempted smoking cessation before, what motivated them to do so and why did they fail. The Asian American Cancer Control Survey did address these questions but they were not examined in this study. Answers to these questions will provide invaluable insights into helping people quit smoking.

Recommendations

Research is necessary to recognize and address the specific healthcare needs of Korean Americans. Several recommendations are offered for future research. Sample sizes of Korean Americans will need to be large enough to conduct meaningful statistical analysis. Changes in coding practices for national studies will be essential so that Korean Americans can be identified separately from other Asian Americans and Pacific Islanders.

Replication of this study in other areas of the U.S. where Korean Americans live would strengthen its external validity. Conducting multivariate analysis such as logistic regression would help control the interaction effect among demographic variables. It would be interesting to research how acculturation to the U.S. influences cigarette smoking behaviors among Korean Americans. For future research studies about cigarette smoking, it is recommended that other theories or models should be utilized in conjunction with the HBM. The HBM alone cannot explain why people smoke cigarettes or why they chose to quit.

Summary

A nurse needs to understand Korean Americans in order to meet their nursing and healthcare needs. This study provided a glimpse of the cigarette smoking behaviors of Korean Americans in accordance with their knowledge and beliefs about cancer and smoking. Although this information is invaluable, the nurse must be careful not to generalize the Korean American culture. Each person is unique and may practice beliefs and behaviors of their culture in different ways.

APPENDICES

APPENDIX A

1991 Asian American Cancer Control Survey

Developed by Elena Yu, Ph.D., MPH and Katherine Kim Ph.D., RN

Only questions pertaining to cancer health beliefs and knowledge in relationship to cigarette smoking status from the 1991 Asian American Cancer Control Survey are included here.

4/6/92 Version

I.D. Number: |_|_|_|_|_|_|_|_|_|_|

CODEBOOK

for the

1991 ASIAN AMERICAN CANCER CONTROL SURVEY

Collaborating Agencies:

San Diego State University
University of Illinois at Chicago
Grand Valley State University
Hong Kong Baptist College

Funding Agency:
National Cancer Institute

Information contained on this form which would permit identification of any individual or establishment has been collected with a guarantee that it will be held in strict confidence. The respondent's participation in the survey is voluntary. He/she has the right not to answer any questions, and can terminate the interview at any time.

16 **SEX** Respondent's Sex: 1. ☐ Male 2. ☐ Female

60 **B1B** 1b. How well do you speak English?
1 ☐ Very well
2 ☐ Moderately well
3 ☐ So-so (can make do)
4 ☐ Poorly
5 ☐ Not at all [3]

62-63 **B3** 3. What is the highest grade you completed in school? CODER: ⌊_⌋⌊_⌋
10 ☐ No formal or informal education
20 ☐ Informal education only
30 ☐ Elementary education (circle grade below)
completed grades: 1, 2, 3, 4, 5, 6, 7, 8
40 ☐ High school education (circle year below)
completed grades: 1, 2, 3, 4, 5, 6th year
50 ☐ College education (circle year below)
completed: 1st, 2nd, 3rd, 4th, 5th year
60 ☐ Graduate education (circle year below)
completed: 1st, 2nd, 3rd, 4th, 5th, 6th, 7th year
70 ☐ Post-junior high vocational school (circle year below)
completed: 1st, 2nd, 3rd, 4th, 5th, 6th, 7th year
80 ☐ Post-senior high vocational school (circle year below)
completed: 1st, 2nd, 3rd, 4th, 5th, 6th, 7th year
90 ☐ Other, not elsewhere classified above (Specify: _____)
completed: 1st, 2nd, 3rd, 4th, 5th year

72-75 **B11** 11. When did you come to the United States to live?

Year: ⌊_⌋⌊_⌋⌊_⌋⌊_⌋

76-77 **B12** 12. When were you born? (Get Date of birth)
CARD 1

Year: ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Month: ⌊_⌋⌊_⌋ Date: ⌊_⌋⌊_⌋

[Interviewer: If can't remember, get animal year of birth.]

CODER: convert into Age ⌊_⌋⌊_⌋
Age is coded according to the date of interview.

.20 **B25** 25. Marital status:
1 ☐ Married -- spouse in HH on a regular basis
2 ☐ Married -- spouse not in HH on a regular basis
3 ☐ Widowed
4 ☐ Divorced
5 ☐ Separated
6 ☐ Never married
7 ☐ Cohabiting

3. What do you think are the warning signs or symptoms of cancer?
Mark all mentioned, do not probe.

26	R3A	1 ☐ Weight loss/loss of appetite
27	R3B	1 ☐ Change in bowel or bladder habits
28	R3C	1 ☐ Unusual bleeding or discharge
29	R3D	1 ☐ Lump in breast or elsewhere
30	R3E	1 ☐ Indigestion
31	R3F	1 ☐ Difficulty in swallowing
32	R3G	1 ☐ Change in a wart or mole
33	R3H	1 ☐ Nagging cough or hoarseness
34	R3I	1 ☐ Chest pain
35	R3J	1 ☐ Shortness of breath
36	R3K	1 ☐ Sores that don't heal
37	R3L	1 ☐ Tired/fatigued
38	R3M	1 ☐ Changes on skin/rash/blemish/sunspots/blotches
39	R3N	1 ☐ Hotness
40	R3O	1 ☐ Body coldness
41	R3P	1 ☐ Other (Specify: _____)
42	R3Q	1 ☐ DK

11 T1 1. Have you smoked at least 100 cigarettes in your entire life?
If asked: approximately 5 packs.
1 ☐ Yes
2 ☐ No [4]
9 ☐ DK [4]

12-13 T2 2. How old were you when you first started smoking cigarettes fairly regularly?
__/__ Age
00 ☐ Never smoked regularly [4]
99 ☐ DK

14 T3 3. Do you smoke cigarette now?
1 ☐ Yes [section V]
2 ☐ No [section U]

		22a. Do you believe cigarette smoking is related to -		*Ask 22c for each "Yes" in 22a.* c. Do you believe that if a person stops smoking completely, his chances of getting *(condition)* are reduced?
60 61 62	W22A3 W22B3 W22C3	3) lung cancer?	1 ☐ Yes 2 ☐ No [4] 3 ☐ Maybe [4] 9 ☐ DK [4]	------> 1 ☐ Yes 2 ☐ No 9 ☐ DK
69 70 71	W22A6 W22B6 W22C6	6) cancer of the mouth and and throat?	1 ☐ Yes 2 ☐ No [7] 3 ☐ Maybe [7] 9 ☐ DK [7]	------> 1 ☐ Yes 2 ☐ No 9 ☐ DK

Now, I would like to ask you if you believe that:

				Strongly	Moderately	Not at all	DK
34	C1	1.	Once you get cancer, it is incurable	1 ☐	2 ☐	3 ☐	9 ☐
35	C2	2.	Cancer is preventable	1 ☐	2 ☐	3 ☐	9 ☐
36	C3	3.	Talking about cancer will bring on cancer	1 ☐	2 ☐	3 ☐	9 ☐
37	C4	4.	Cancer is contagious	1 ☐	2 ☐	3 ☐	9 ☐
38	C5	5.	Depression causes cancer	1 ☐	2 ☐	3 ☐	9 ☐
39	C6	6.	Cancer is caused by excess "hotness" or "coldness" in the body	1 ☐	2 ☐	3 ☐	9 ☐
40	C7	7.	Cancer occurs to those who did bad things in their previous life	1 ☐	2 ☐	3 ☐	9 ☐

42 C9 9. Do you drink any alcoholic beverages? Did you drink before?

1 ☐ No, never [11]
2 ☐ Yes, I used to but not anymore -- no matter how little [10]
3 ☐ Yes, I still do -- no matter how little [10]

1a. Which of these things do you think increases a person's chances of getting cancer?' *Mark all mentioned in first column, do not probe.*

		INCREASE CHANCES
51	R1A1A	1 ☐ Stress
52	R1A2A	1 ☐ Inherited make-up or heredity
53	R1A3A	1 ☐ Exposure to x-rays
54	R1A4A	1 ☐ Poor eating practices
55	R1A5A	1 ☐ Using betel nuts, chewing tobacco, snuff, pipes or cigars
56	R1A6A	1 ☐ Air pollution
57	R1A7A	1 ☐ Water pollution
58	R1A8A	1 ☐ Some cloth dyes
59	R1A9A	1 ☐ Exposure to toxic waste dumps
60	R1A10A	1 ☐ Exposure to toxic substances on the job
61	R1A11A	1 ☐ Exposure to people with cancer
62	R1A12A	1 ☐ Excessive drinking of alcoholic beverages
63	R1A13A	1 ☐ Exposure to the sun
64	R1A14A	1 ☐ Cigarette smoking
65	R1A15A	1 ☐ Exposure to nuclear waste
66	R1A16A	1 ☐ Some strong soaps and detergents
67	R1A17A	1 ☐ Viruses
3	R1A18A	1 ☐ Some medicines
69	R1A19A	1 ☐ Medical procedures using radiation
70	R1A20A	1 ☐ DK

CARD 4

24. Now I'm going to read a list of statements about cigarette smoking. After I read each one, please tell me whether you strongly agree, agree, disagree, or strongly disagree, or if you have no opinion.

13 W24A a) Everything causes cancer anyway so it doesn't really matter if you smoke.
1 ☐ Strongly agree
2 ☐ Agree
3 ☐ Disagree
4 ☐ Strongly disagree
5 ☐ No opinion

14 W24B b) Smoking by a pregnant woman may harm the baby.
1 ☐ Strongly agree
2 ☐ Agree
3 ☐ Disagree
4 ☐ Strongly disagree
5 ☐ No opinion

15 W24C c) The smoke from someone else's cigarette is harmful to you.
1 ☐ Strongly agree
2 ☐ Agree
3 ☐ Disagree
4 ☐ Strongly disagree
5 ☐ No opinion

16 W24D d) Most deaths from lung cancer are caused by cigarette smoking.
1 ☐ Strongly agree
2 ☐ Agree
3 ☐ Disagree
4 ☐ Strongly disagree
5 ☐ No opinion

17 W24E e) People who smoke low tar and nicotine cigarettes are less likely to get cancer then people who smoke high tar and nicotine cigarettes.
1 ☐ Strongly agree
2 ☐ Agree
3 ☐ Disagree
4 ☐ Strongly disagree
5 ☐ No opinion

18 W24F f) If people want to smoke, they should not do so inside public places where it might disturb others.
1 ☐ Strongly agree
2 ☐ Agree
3 ☐ Disagree
4 ☐ Strongly disagree
5 ☐ No opinion

APPENDIX B

Grand Valley State University Human Subjects Approval Letter

GRAND VALLEY STATE UNIVERSITY
1 CAMPUS DRIVE • ALLENDALE MICHIGAN 49401-9403 • 616/895-6611

October 2, 1997

Melissa George
849 Walsh SE
Grand Rapids, MI 49507

Dear Melissa:

Your proposed project entitled "***Cigarette Smoking and Cancer Knowledge and Beliefs of Korean Americans***" has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

[redacted]

Paul Huizenga, Chair
Human Research Review Committee

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