

Korean Immigrant Women’s Perceptions and Behaviors of Cervical Cancer Screening in Hawaii

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Abstract

Introduction: Minority immigrant women are more likely to be diagnosed with and suffer from cervical cancer compared to other minority women in the United States.

Purpose: The purpose of this qualitative ethnographic study was to explore cultural health perceptions and behaviors of cervical cancer prevention among Korean immigrant women (KIW) in Hawaii.

Methods: The Health Belief Model (HBM) and the Social Ecological Model (SEM) were used to guide the study. Data were collected using individual structured interviews with 20 KIW ages 21 to 65. Data were coded and analyzed to identify themes.

Result: Findings revealed that participants (a) prefer a female gynecologist and Korean-speaking physicians; (b) are highly motivated to maintain physical health, including prevention; (c) prefer culturally appropriate community-based cancer prevention programs; and (d) expect innovative health maintenance approaches.

Conclusion: Findings may be used by health care providers to identify culturally specific health needs of KIW related to cervical cancer screening, and to implement appropriate preventive measures for KIW to reduce cancer death.

Keyword: Cervical Cancer, Cancer Screening, Cancer Prevention, Korean Americans, Immigrant Health, Health Disparity, Transcultural Nursing, Health Belief Model

Background

Korean American Immigrants (KAIs) are one of the most rapidly growing ethnic minority populations in the United States. In 2014, they were the fifth largest Asian American community (1.8 million) after Chinese except Taiwanese (4.5 million), Asian Indians (3.8 million), Filipinos (3.8 million), and Vietnamese (2.0 million) [1]. In 2010, there were 1,706,822 KAIs living in the United States [2]. Of that population, 505,225 KAIs were in California, and 153,609 were in New York [2]. Although the total number of KAIs living in Hawaii (48,699) may not appear significant compared to the numbers in California and New York, the population per 100,000 is higher than in any other state (see Table 1). In Hawaii, the Korean American population per 100,000 residents is 3,580, compared to 1,356 in California and 1,190 in New York [3].

Table 1: Top Ten Status: Korean Americans per 100,000 Residents (2010 Census Data)

STATE	POPULATION (per 100,000)
Hawaii	3,580
California	1,356
Washington	1,190
New Jersey	1,141
Virginia	1,025
Maryland	954
Alaska	921
New York	793
Nevada	686
Georgia	628

Recent census data confirms that Asian alone, or in combination with other Asian populations, represented approximately 56.1% of the total population in the State of Hawaii [2]. The State of Hawaii has a history of attracting immigrants, especially from Asian countries, which explains why it has the largest portion of

multiracial ethnicity groups. Hawaii's multiracial population accounts for approximately 24% of its total residents, followed by Alaska (8%) and Oklahoma (7%). Over a century ago, KAIs like many other Asian immigrants in Hawaii were low-wage laborers and low-skilled farm workers who were targets for social and health discrimination. When compared with other U.S. groups, however, KAIs have excelled in a number of social benchmarks. By the age of 25, 53% of KAIs hold a college degree, compared to 29% of foreign-born Americans and 31% of the native-born Americans [4]. The significant difference is also reflected in median annual household income levels, where KAIs make an average of \$66,000 per year compared to \$49,800 for other American adults [5]. In 2015, KAIs were less likely to be uninsured than the other immigrant populations; only 13% of KAIs were uninsured, compared to 22% of overall immigrant populations. Of the insured, only 25% of KAIs are enrolled in public coverage, as compared to 36% of Native Americans [4].

Despite health insurance coverage and health care services enabling Americans to live healthier and longer lives, most KAIs are unable to take advantage of medical privileges due to cultural and linguistic barriers, limited access to high quality health services, and providers' limited knowledge of KAI patients and their culture [6]. Sherman, Wang, Carreon, and Devesa [7] claimed the cervical cancer rate among American women has dropped dramatically due to increased availability of cancer screening tests for early detection over the last five decades.

Despite these efforts, cervical cancer is still the leading cause of death among many Asian Americans, including KAIs [8]. Immigrants are generally the most vulnerable population in the context of health care access and public health services [9].

Introduction

Advanced medical treatments and innovative health technologies have improved the quality and longevity of American life in the last few decades. The limited research on health perceptions and health behaviors among minority populations, however, continues to limit knowledge regarding effective interventions addressing health disparities [10]. To enact national health strategies aimed at improving health equity and equality for minority populations, the U.S. Department of Health and Human Services [10] introduced an action plan to reduce racial health disparities. The State of Hawaii Department of Health [11] also developed a variety of health promotions and wellness education programs with the goal of improving the health status of Hawaii residents, including minority populations.

The cervical cancer prevention program in the United States is a product of national, state, and local health efforts to improve cancer mortality rates. Cervical cancer is the second most common type of preventable cancer among women globally [12]. Cervical cancer is the seventh most common cancer and the third leading cause of cancer related deaths among Korean women in Korea [13]. The mortality rate among Korean immigrant women diagnosed with cervical cancer was significant that age-specific incidence rate of cervical cancer showed a decreasing trend in all age groups except those younger than 30 years [14]. The increase of cancer-related deaths among Asian Americans may be associated with the fact that cancer screening rates are significantly lower in

this ethnic group than in other American populations [15]. Studies on cancer screening barriers among minority females showed lack of accurate knowledge about the causes of cervical cancer, stigma, language barrier, fear, and embarrassment [16]. In a study of cultural factors associated with cervical cancer screening among Korean American women, Lee [17] found that a lack of family support, embarrassment, preventive health orientation, fatalism, and years of acculturation influenced screening rates.

The Hawaii Comprehensive Cancer Control Coalition has been developing the state's first Comprehensive Cancer Control Plan for residents in Hawaii. The coalition suggested a 5-year strategic plan to reduce cancer death rates and improve individual, family, and community health [11]. Understanding health perceptions and health behaviors of a particular ethnic group is essential to develop effective local, state, and national strategies for improving health equity and equality of minority populations, particularly underserved Asian immigrants such as Koreans [18]. To improve cancer-screening rates, the Hawaii Breast and Cervical Cancer Control Program offers free mammograms and pap smear tests to uninsured or underinsured females.

Early detection and early intervention increase cancer survival rates [19]. The cancer screening rate, however, continues to be disproportionately lower result among KAI in Hawaii [18]. This signals the importance of exploring cultural factors such as health beliefs and health values, which might impact health-related decisions and outcomes. Health literacy on the Human Papilloma Virus (HPV) vaccination among young Korean Americans must also be addressed through the lens of sociocultural factors to understand how these factors influence a KAI who is deciding whether to obtain the vaccination or to complete the series of vaccination shots [20]. To establish culturally effective and appropriate health interventions for cervical cancer screening, accurate health perceptions, health behaviors, and barriers to preventive care practices among Korean immigrant women in Hawaii need to be explored.

Research Questions

This study addressed the health perceptions and behaviors to cervical cancer screening among Korean immigrant women between the ages of 21 and 65. Exploring specific cultural health perceptions and health expectations through cancer preventive care is essential to assessing the health status of minority populations [21]. National health initiatives continue to focus on reducing cancer mortality and improving health disparities of minority populations, including Asian Americans in the United States. Healthy People 2020 [22] suggested that improving health care access by offering comprehensive quality health care services can diminish current and potential health disparities among minority populations. The State of Hawaii Department of Health Office of Health Equity [23] also announced its health goals for promoting the health and self-sufficiency of vulnerable minorities. To better support local and national efforts to reduce the number of deaths caused by cancer, it is important to identify the distinct characteristics of risk factors, including physical, social, and cultural aspects among Koreans [24].

The qualitative study was conducted to bridge the gap in current literature regarding health perceptions and behaviors of Korean

American women encounter in receiving cervical cancer screening. The goal of this study was to identify and encourage culturally sensitive approaches to cervical cancer prevention, among Korean immigrant women in Hawaii. Cervical cancer prevention among Korean immigrant women (KIW) is a significant target for population-focused public health efforts. The following research questions were developed to explore the health perceptions and behaviors to cervical cancer screening and prevention among KIW in Hawaii:

1. What are the health perceptions regarding cervical cancer screening, follow-up health management, and prevention measures among KIW in Hawaii?
2. What are the health behaviors related to routine cervical cancer screening, follow-up health management, and prevention measure practices among KIW in Hawaii?

Health Belief Model

This study was based on two theories and their key constructs of health. First, the health belief model (HBM) was applied to explore the individual health perceptions and health behaviors regarding cervical cancer screening among the study population. The HBM was developed by social psychologists in the 1950s to determine the reasons why people fail to adopt health promotion and disease prevention strategies, such as screening tests and early detection methods [25]. The HBM is widely considered to be one of the best frameworks for characterizing health behaviors relative to current health care practices [26]. The HBM indicates that a person's value in individual health will predict his or her health behaviors, specifically regarding his or her likelihood to make health decisions [27]. The HBM was considered as a framework for predicting individual cervical cancer screening behaviors including ongoing pap smear tests and HPV vaccinations in the following six dimensions: (a) perceived susceptibility to health threats from cervical cancer; (b) perceived severity of the health

threat caused by cervical cancer and cancer complications; (c) perceived benefits of performing the recommended cancer screening, follow-up health management, and prevention measures; (d) perceived barriers to performing the recommended screening tests, follow-up health management, and prevention measures; (e) cue to action, with health decision to accept screening test, follow-up health management, and prevention measures to change individual health behaviors; and (f) self-efficacy to engage in ongoing cancer screening tests as recommended by health care providers, including follow-up health management, and further prevention measures, as shown in Figure 1 and Table 2. The KIW's health behaviors relating to cervical cancer screening practices were based on their perceived susceptibility, perceived severity, perceived benefits, and perceived barriers to cervical cancer screening and prevention strategies such as ongoing Pap smear tests and the HPV vaccination as recommended.

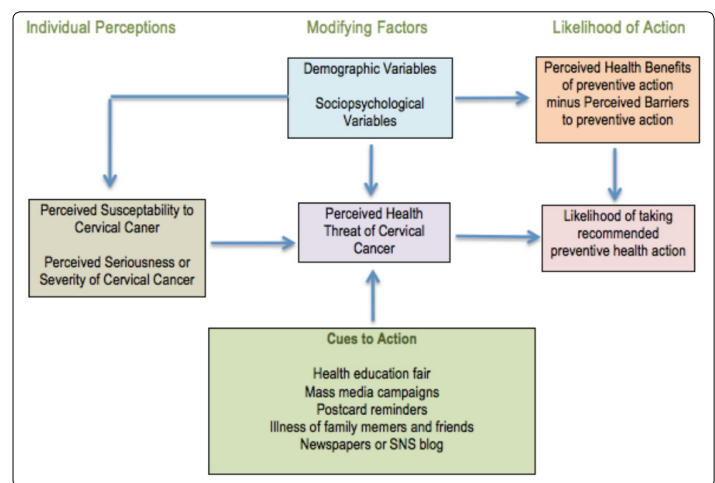


Figure 1: Health belief model for health behavior change

Table 2: HBM to Cervical Cancer Screening and Prevention Measures

Six Dimensions	Cervical Cancer Screening	Prevention Measures
Perceived Susceptibility	Individual KIW believes they are vulnerable to cervical cancer	Individual KIW believes they are at-risk of contracting cervical cancer if they are not engaged in prevention measures such as routine pap smears and HPV vaccination
Perceived Severity	Individual KIW believes the consequences of having cervical cancer and cancer complications without knowledge of screening method for early detection	Individual KIW understands the seriousness of cervical cancer and is also aware of the minor discomfort caused by the pap smear test and HPV vaccine injection
Perceived Benefit	Individual KIW believes cancer screening is for early detection of cervical cancer which can be treatable	Individual KIW believes routine prevention measures for early detection of cervical cancer will improve cancer survival rate and prognosis
Perceived Barriers	Individual KIW identifies personal barriers to get cancer screening and continuous follow-ups	Individual KIW identifies personal barriers to engaging in routine pap smear tests and HPV vaccination series and understand potential side effects
Cue to Action	Individual KIW receives routine cues and reminders for cancer screening appointments	Individual KIW receives cues and reminders for on-going pap smear schedules and HPV vaccination schedules
Self-Efficacy	Individual KIW receives educational information regarding cancer screening and engages in the screening schedule annually	Individual KIW receives educational information regarding pap smear tests and HPV vaccination information and engages in routine pap smear tests annually and HPV vaccination series as directed

Even though HBM may have limits to explaining non-health-related behaviors such as social acceptability, environmental factors, or economic factors, it provided a foundation for understanding the relationship between personal health perceptions and cervical cancer

screening behaviors among KIW in Hawaii. Cervical cancer screening and preventive measures, such as the Pap smear test and HPV vaccination, are highly effective but underutilized among Korean Americans [28]. Exploring how these women perceived cervical cancer

detection and preventive measures based on HBM, including both cultural and social factors, explained the reason behind current participation rates in cervical cancer screening and suggested ethnically appropriate approaches to improving cervical cancer screening rates.

Social Ecological Model

The social ecological model (SEM) was used to understand internal and external factors affecting KIW's health behaviors regarding cervical cancer screening and preventive measures. The SEM is a theory-based framework for understanding the levels of a social system and interactive effects of personal and environmental factors that determine behaviors, and for identifying behavioral and organizational leverage points for health promotion and wellness such as cervical cancer prevention [29]. The SEM provided recommendations for developing effective health strategies based on successful programs that supported KIW within their unique social environments. Although the HBM was used to interpret KIW's health perceptions, the SEM emphasized multiple levels of influence such as interpersonal, organizational, community, and public policy. The SEM suggested that health behaviors of KIW were shaped by individual experiences and also by external and social factors.

According to Senore [30], cervical cancer screening for at-risk female populations should be suggested as an effective health promotion strategy through a combination of models (individual, social, and environmental) to maximize the health benefits. The approach to changing health behaviors has traditionally focused solely on individual factors such as an individual's health knowledge, health beliefs, and health habits [31]. The SEM offers a broader approach by including not only individual factors but also other levels of influence. Health and public health professionals

agree that multifactor and multilevel approaches lead to effective behavioral modification in terms of cervical cancer screening and prevention measures [32]. Based on the SEM, health behaviors of KIW were shaped through multiple levels of health determinants. The CDC [33] adapted the SEM to recommend a health and prevention promotion strategy through the National Breast and Cervical Cancer Early Detection Program. The multilevel approach to understanding the health perceptions and health behaviors of KIW may help to develop appropriate health interventions to promote cervical cancer screening and prevention measures. KIW are family oriented and are often influenced by their individual level of self-efficacy, interpersonal social supports including family members and friends, and community perceptions of health and health expectations [34], as shown in Figure 2 and Table 3.

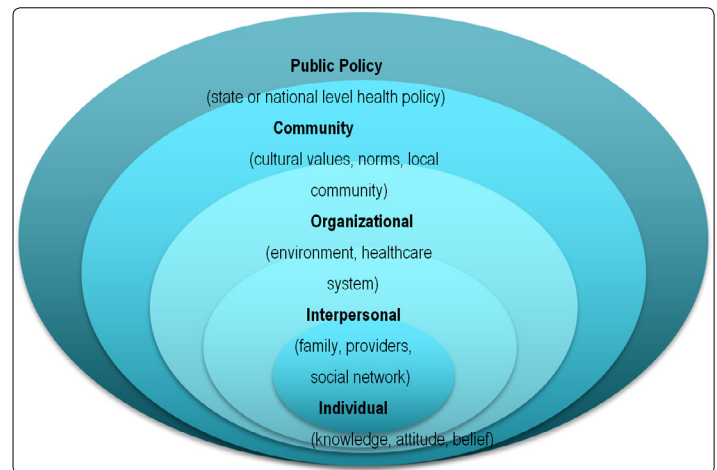


Figure 2: Social ecological model for health behavior change

Table 3: Description of SEM Levels Related to Cervical Cancer Screening and Preventive measures

Key Constructs	Cervical Cancer Screening	Prevention Measures
Public Policy	KIW interprets current health policy and engages with local, state, and federal levels of health promotion strategy of the cervical cancer screening	KIW collaborates and communicates policy decisions regarding cervical cancer prevention measures including routine pap smear test and HPV vaccination with other KIW
Community	KIW collaborates to promote cervical cancer screening and expands community resources	KIW engages public awareness and educational campaign of cervical cancer prevention
Organizational	KIW utilizes screening health reminder systems from websites and local health departments	KIW adopts preventive care measures through websites and local health departments
Interpersonal	Family members and friends affected by cervical cancer. Received screening recommendation from health providers	Family members and friends share information about cervical cancer prevention measures. Received reminders about pap smear test and HPV vaccination schedule
Individual	Individual KIW's knowledge, attitude, and beliefs about cervical cancer risks and benefits of screening	Individual KIW's knowledge of and access to affordable cervical cancer preventive methods such as pap smear test and HPV vaccination

Literature Review

The purpose of this research was to understand Korean immigrant women's (KIW's) health perceptions of the cervical cancer screening and the HPV vaccination that might influence their health behaviors to engage in routine screening and preventive measures. Identifying health perception and behaviors based on cultural aspects to reduce cervical cancer screening, might improve the compliance of screening and follow-up management of preventive measures. For many decades, federal and state health policies have not directly addressed ethnically-specific challenges to quality health services for millions of immigrants in the United States [9].

Disproportionate health care benefits negatively influence the health outcomes of society's most vulnerable female populations, including women of color, low-income households, and Asian immigrants [35]. When compared to native born U.S. citizens, immigrants tend to delay seeking professional health care and underutilize available health services [36].

Korean women are noted for having the third longest life expectancy, with an average lifespan of 85.48 years, just behind Japanese (86.8) and Spanish (85.5) women [37]. Due to the high standards of health and physical appearance, South Korea is known as a nation of slim

people who naturally take advantage of annual preventive care services and traditional medicine practices [24]. Korean women who migrated to United States, however, find themselves at increased risk for metabolic imbalance, cancer-related death, and preventable diseases, as their access to quality health care resources and services is limited [14]. The limited knowledge of health perceptions and health behaviors among Korean minority population continues to influence health disparities in many ways [38]. Ethnicity and the concept of cultural health practices have been proposed as a better explanation of minority populations' health behavior and health outcomes [39]. Studies showed racial and ethnic minorities tend to receive a poorer quality of health care services than non-minorities, signaling that racial and ethnic disparities in health care continue to exist [40]. Previous research on KAIs in the United States indicated that more than 90% of first generation KAIs speak only Korean, and 70% of these KAIs have difficulty understanding medical information and terminology [41]. In 2015, nearly 61% of over 1.7 million KAIs attained U.S. citizenship through naturalization [42]. There is a need to partner with state and local health agencies to implement strategies for improving health equity and equality for Korean American populations [43].

Following major immigration waves from Asian countries such as Japan, China, and others, Koreans arrived in Hawaii as plantation workers at the beginning of the 20th century and have continued to reside there as family immigrants, students, and occupational professionals [44]. For many years thereafter, Hawaii experienced a steady increase of Korean immigrants. In 2010, the census report identified 48,699 individuals of Korean descent living in Hawaii, which is the sixth largest non-English speaking population out of 28 population groups in Hawaii [45]. As a sub-minority population, KAIs are not completely integrated into the social, cultural, and occupational opportunities in Hawaii. The SOH DOH [108] has developed a variety of health programs and health education strategies to improve the health status of Hawaiian residents, including its minority populations such as Korean Americans. For example, the Hawaii Comprehensive Cancer Control Coalition, which is developing the state's first Comprehensive Cancer Control Plan for residents in Hawaii, suggested a 5-year strategic plan to reduce cancer rates and improve individual, family, and community health [11]. Understanding culturally specific health perceptions, health behaviors, and health barriers of a particular ethnic group is essential to developing local, state, and national strategies for improving health equity and equality among minority populations, particularly underserved Asian immigrants such as Koreans [18]. A better understanding of these perceptions may influence Korean Americans to develop a sense of community empowerment to support their health needs.

According to Yedjou [46], national health initiatives continue to focus on reducing cancer mortality and improving health disparities among minority populations in the United States, including Asian Americans. Healthy People 2020 [22] suggested that improving health care access by including comprehensive quality health care services can diminish current and potential health disparities among minority populations. The SOH DOH OHE [23] also announced its health goals for promoting the health and self-sufficiency of vulnerable minority populations. It is vital to identify the distinct physical, social, and cultural risk factors affecting Korean Americans to support national and state health initiatives [24]. In Korea, individuals have access to low-cost compulsory national health insurance for all medical treatments, prescription drugs (including

traditional medicine), and ongoing preventive services [47]. Korean American immigrants arrive in the United States in a healthier condition than most Americans, but their health status steadily deteriorates over time due to the changes and challenges associated with assimilating to a new culture [48]. Individual-level challenges include cultural and linguistic barriers, adoption of American diets and sedentary lifestyle, and learning to navigate system-level health care challenges [49]. With respect to health care challenges, Korean Americans, like many other Asian subgroups in the United States, have difficulty adjusting to the high cost, limited medical services offered through the U.S. health care system [50].

Literature Review Related to Key Concepts

Globally, cervical cancer is one of the most common gynecological cancers and the leading cause of death among women [51]. Although the pap smear test is an effective screening method for identifying potential cancerous cells, rates of screening use remains poor in many developing countries. In many developed countries, however, early detection efforts through screening have improved cervical cancer survival rates [52]. Unfortunately, minority populations living in developed countries such as the United States continue to under-utilize screening measures [53]. Minority women who have their own unique cultural health beliefs, language barriers, and lack of social resources remain at risk for contracting cervical cancer [54].

Etiology of Cervical Cancer

As most cancers start when body cells grow abnormally and out of control, cervical cancer often starts when the lining of cells in the cervix grow abnormally. These abnormal cells gradually transform from pre-cancerous cells into cervical cancer. It often takes years to develop the most common forms of cervical cancer -squamous cell carcinomas or adenocarcinomas [55]. Although the early stages of cervical cancer are generally asymptomatic, the more advanced stages of cervical cancer show vaginal bleeding after intercourse, between menstrual periods, or after menopause [56]. Other signs of cervical cancer include bloody or watery vaginal discharge that may have foul odor, and general or pelvic pain or pain during intercourse [57]. Risk factors for cervical cancer include multiple sexual partners, early sexual activity, sexually transmitted infections (STIs), poor immune system, and cigarette smoking [58]. Cervical cancer are two types of metastasis: hematogenous and lymphatic [59]. The outcome of patients with metastatic cervical cancer is poor that the 5-year survival rate for metastatic cervical cancer is 16.5% compared to 91.5% for other localized cancer [59].

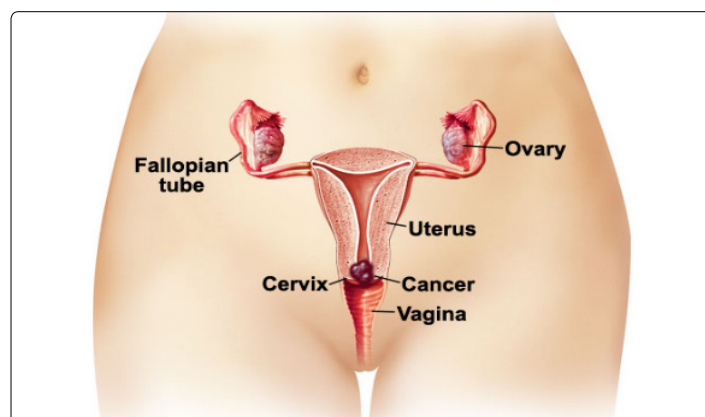


Figure 3: The position of cervical cancer

Prevalence and Mortality Rates for Cervical Cancer

Cervical cancer is a common type of cancer among sexually active women between the ages of 20-39 [60]. Previously, cervical cancer was one of the leading causes of cancer deaths in United States. However, the death rate has decreased over the decades due to increased pap smear testing, leading to earlier detection of abnormal cancer cells [61]. The American Cancer Society (ACS) estimates about 12,820 new cases of invasive cervical cancer will be responsible for the death of 4,210 women in 2017 [62]. In the United States, Hispanic women have the highest risk of contracting cervical cancer, followed by African Americans, Asians and Pacific Islanders, and Caucasians [63]. Native Americans and Alaskan Natives have the lowest risk of cervical cancer [64].

Prevalence in Hawaii

Emerging public health problems such as obesity, diabetes, chronic cardiovascular conditions, and cancer are common in Hawaii. According to Moore and researchers [65], the breast and either cervical or lung cancer are common among Pacific Islanders including Native Hawaiians and Micronesians, even though the cervical cancer screening strategy is prevalent among this population. Samoan women accounting for who are the eighth largest ethnic group of Hawaii's population also present cervical

cancer at earlier stages and need collaborative evidence-based approaches for treatment plans and prevention strategies [66]. The risk of contracting cervical HPV increases with one's number of sexual partners, use of hormonal creams, alcohol drinking, and lack of condom use, and decreases with age, income, and long-term use of oral contraceptives [67].

Guidelines for Cervical Screening

The study showed that the Pap smear test is a powerful and effective screening measure to detect the premalignant stage of cervical cancer, which is fully curable if identified early-on. According to the American Society for Colposcopy and Cervical Pathology (ASCCP), the major contributing factor to most cervical cancer deaths is being rarely or never screened [68]. In 2012, the American Cancer Society (ACS), American Society for Colposcopy and Cervical Pathology (ASCCP), and American Society for Clinical Pathology (ASCP) published a recommendation that cervical cancer screening should begin at age 21, except among special women populations with a history of cervical cancer or immunocompromised persons [69]. The guidelines recommend age-appropriate screening strategies, HPV testing, and follow-up management for positive screening results and screening interval management for negative screening results [70].

Table 4: Summary of Pap Smear Recommendations

Risk Population	Recommended Screening Method	Management of Screening Result
< 21 years	No screening	
21 -29 years	Pap smear every 3 years	
30 -65 years	Pap smear with HPV every 5 years (preferred)	Positive HPV result & negative pap smear → 12month follow-up with contesting
	Pap smear every 3 years (acceptable)	Negative pap smear → re-screen in 3 years
> 65 years	No screening	Women with history of cervical cancer or more severe diagnosis → continue routine screening for at least 20 years
After Hysterectomy	No screening for women without a cervix	Women without history of cervical cancer in the past 20 years
HPV Vaccinated	Continue age-specific recommendation	

The Pap smear test, which is an invasive procedure, is not recommended for adolescent populations [71]. However, sexual health education regarding using of contraception and sexually transmitted infection (STI) screening or treatment must continue. To minimize discomfort and prevent unnecessary complications, STI testing for adolescents can be done through urine tests. For women between the age of 21-29, HPV testing alone should not be used to screen for cervical cancer because it is not a primary stand-alone screening to diagnose the cervical cancer [72]. The new recommendation also verifies that after multiple negative pap smear tests, a longer check-up interval -increasing from two to three years- is acceptable because the risk of having cancer is not significantly higher with frequent testing [73]. For women between the ages of 30-65, the combining the pap smear test with HPV testing in concert with cervical cytology (HPV co-testing) are not recommended for all women [74]. Some communities may lack access to HPV testing due to financial and logistical constraints and potential harm without benefits. Routine pap smear test – conducted every 1 to 3 years- as a cervical cancer screening measure is effective after becoming sexually active through the age of 65, depending on previous test results [69]. In many developed countries, the decline of cervical cancer cases is attributed to comprehensive cervical cancer screening efforts

including advanced cancer treatments and follow-up medical management. Low participation in routine cancer screening and low follow-up management coincided with high mortality rates among particularly risky subpopulations in the United States [75]. At-risk subpopulations include ethnic minorities, people from low socio-economic statuses, foreign born or living in the United States for less than 10 years, and unusual or no sources of health care. Although the overall cervical survival rate of Asian-American women is higher than Caucasian women –except those of Japanese, or Korean origin –the majority of Asian-American women have less access to screening tests, and routine pap smear test than is highly recommended [8].

HPV Vaccination as a Prevention Option

The communicable infection caused by genital human papillomavirus (HPV) is commonly transferred from one person to another during sexual activity. Oftentimes, HPV is asymptomatic and goes away on its own, but certain strains of HPV can cause the cancer of the cervix, vulva, vagina, penis, or anus [76]. The CDC recommends adolescent girls between the ages of 11 to 12 get two doses of the HPV vaccination to protect against cervical cancer caused by HPV [76]. Although the HPV vaccine is highly effective, persistent health disparities among ethnic minorities and foreign-

born people still exist [61]. According to De and Budhwani [77], health insurance coverage and the presence of a medical home for the patient were significant factors that were associated with administering the HPV vaccination. They also suggest that policies requiring school-based HPV vaccinations boost health outcomes across all populations including foreign-born persons, ethnic minorities, and boys [77].

Recent studies suggested HPV vaccination is recommended for adolescent males and females and across all racial and ethnic populations [78]. Low-income and minority adolescents are equally, if not more likely to start the HPV vaccination series than Caucasians, but the completion of all series of vaccination is lower than Caucasian adolescents [79]. Although the HPV vaccination series completion rate increased between 2008 and 2009 [80], it is important to note that ethnic differences and poverty disparities are significant factors impacting the completion of all series of the vaccination. Parents voicing “no-intent” for their adolescents to receive HPV vaccination should be redirected to targeted educational tools aimed at providing a clear overview of the purpose, safety, and efficacy of the HPV vaccination [81]. For minority parents, ensuring routine healthcare visits and following-up on provider recommendations are key to completing the HPV vaccination series. In accordance with Relter and researchers’ findings [82], healthcare providers who are able to discuss the benefits of HPV vaccination in the clients’ preferred language are incredibly effective at increasing HPV vaccination and minimizing potential barriers to vaccination.

Cervical Cancer Screening to KIW

Current cervical cancer screening programs frequented by ethnic minorities often face obstacles such as limited available services, inadequately trained health care providers, insufficient testing supplies, and inferior patient follow-up health management systems. In many Korean American communities in the United States, the lack of appropriate screening programs, culturally trained healthcare providers, and female healthcare providers, are associated with low participation in cervical cancer screening [83]. In turn, this is often linked to higher risk for cancer mortality and poor prognosis of treatment due to delayed diagnosis. Socially, the inappropriate allocation of health funds and human resources in health care systems that serve ethnic minorities may lead to a deficiency in early detection of cervical cancer among KIW [84]. As an at-risk subpopulation, KIW are vulnerable to possible harm associated with screening such as anxiety over a positive test, stigma of an STI, pain or bleeding from procedures, or treatment-related pregnancy complications [85]. KIW also have lack of adequate knowledge regarding cervical cancer screening and socio-cultural barriers such as the embarrassment associated with a pelvic exam, which might be the major factors hindering participation in available screening programs [86].

Methodology

A qualitative study with an ethnographic approach was used to explore the social interaction, health behavior, and health perceptions associated with cervical cancer screening and preventive care approaches among KIW in Hawaii. The central aim of the ethnographic approach was to provide rich and holistic insights into KIW’s views and actions through structured observation and interviews. An ethnographic research design takes a cultural lens to the study of people’s lives to explore the meaning

of a phenomenon through in-depth exploration of cultural dimensions [87]. This approach was used to identify meaningful health concepts to explain the personal experiences and individual views of the participants. Qualitative data were collected and processed using an open-ended semi-structured interview protocol, which was designed using the six dimensions of HBM. The collected data were coded and analyzed using NVivo software. Analytic software assists researchers in interpreting and uncovering the meaning or themes from the participants’ responses [88]. Software also helps researchers to identify potential biases and to avoid overanalyzing data. KIW in Hawaii were selected for the study because of the gap in the research literature on health perceptions and health behaviors for cervical cancer screening and prevention with this population. The State of Hawaii is also significant to Korean immigrants because they first migrated to Hawaii approximately 110 years ago. Due to the racial and ethnic diversity of the state’s residents, medical and social disparities among ethnic groups continue to exist in Hawaii [89]. Compared to local, state, and national benchmarks, study cite county’s 2015 pap smear test data did not meet target goals. According to the results, 70.9% of women ages 18 years and older have had a pap smear in the past 3 years, compared to 74.0% in the State of Hawaii and 75.2% in the United States [90]. The target goal of Healthy People 2020 for Pap smear test rates, which is 93%, has not been met [91].

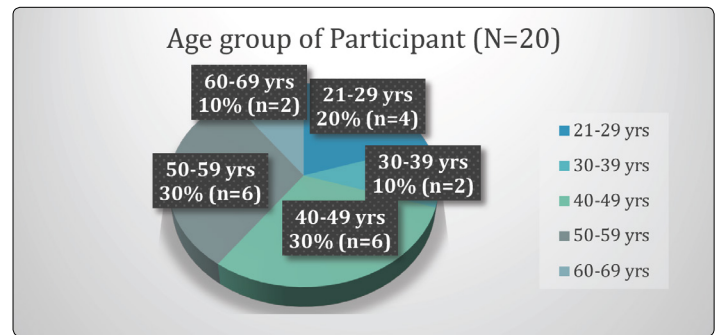
Demographics

The purposeful sampling used for the selection of KIW participants provided this study with rich data directly related to the research goals. A total of twenty Korean Immigrant Women (KIW, N=20) participated in the study. These primary interview participants were between the ages of 21 and 65, living in Oahu island of Hawaii. The inclusion criteria narrowed the sample down to participants who: (a) self-identified as a first-generation KIW immigrant to Hawaii; (b) aged 21 through 65; (c) single, unmarried, or married; (d) able to understand and communicate in basic English and Korean to communicate; (e) able to participate in the study’s one-on-one interview session for at least 30 minutes to one hour; and (f) able to comprehend the English or Korean informed consent. The rationale for this study’s KIW target age group is that first generation immigrant Korean women have among the lowest rates of cervical cancer screening in U.S. [92]. The exclusion criteria include women who did not meet the interview participant criteria who had a hysterectomy or had been diagnosed with cervical cancer before the interview. Women who had physical, emotional, psychosocial, and financial difficulties that were unable to tolerate the duration of the interview and the physical setting of the session were excluded. One participant, however, reported after the interview that she recently had a hysterectomy. This was problematic, as she had denied having an operation of this nature at the time of the recruitment phone pre-screening. Table 5 displays the summary of demographic characteristics of the study participants. The distribution across each age group indicates that 20% of participants were between the ages of 21-29 years (n=4); 10% between 30-39 years (n=2); 30% between 40-49 years (n=6); 30% between 50-59 years (n=6); and 10% between 60-69 years (n=2). A majority of the participants have lived in the U.S (80%, n=16) and Hawaii (65%, n=13) longer than 10 years. 95% (n=19) of the participants obtained at least a high school degree, and 60% (n=12) of the participants obtained a college degree and postgraduate degree.

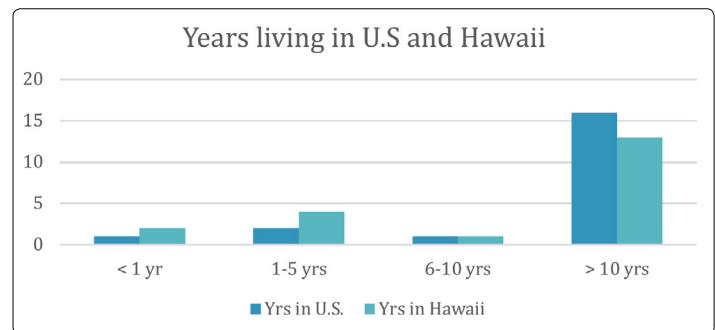
Table 5: Demographic Characteristics

Characteristics	Subtotal (n)	Percentage (%) N=20
Age (years)		
21-29	4	20
30-39	2	10
40-49	6	30
50-59	6	30
60-65	2	10
Years in U.S.		
< 1 yr	1	5
1-5 yrs	2	10
6-10 yrs	1	5
> 10 yrs	16	80
Years in Hawaii		
< 1 yr	2	10
1-5 yrs	4	20
6-10 yrs	1	5
> 10 yrs	13	65
Highest Educational Degree		
< High school	1	5
High school	4	20
Vocational training program	3	15
College	10	50
Graduate school	2	10
Annual Income		
< \$5,000	2	10
\$5,000 - \$19,000	3	15
\$20,000 - \$39,000	3	15
\$40,000 - \$59,000	5	25
> \$60,000	7	35
Employment Status		
Unemployed	5	25
Part-time	3	15
Full-time	6	30
Self-employed	5	25
Other	3	15

KIW who live in the United States and State of Hawaii longer than 10 years can be considered more Americanized in the respect that they are familiar with the U.S. healthcare system and speak some English. All participants have legal status for school and/or for work, affording them access to health insurance or at least the means to pay the medical costs. Data from the U.S. Census Bureau show that in 2014 more than 50% of the Korean American population aged 25 and above holds a bachelor's degree or higher postgraduate degree [93] ranking Korean American as the highest percentage of higher education degree holders as compared to other Asian sub-ethnic groups. Compared to the total foreign-born U.S. population, Korean immigrants tend to have much higher educational attainment than the overall foreign-and native-born Americans; 53% of Korean immigrants aged 25 and above hold a bachelor's degree or higher, compared to the total U.S. foreign-born population (29%) and native-born population (31%) [94].

**Figure 4: Age group of participants**

60% of the participants' (n=12) annual income is above \$40,000. Participants are predominately employed (75%, n=15), however, 20% of participants were students (n=4) who are currently unemployed. In 2015, 77% of Korean immigrants living in the United States were of working ages 18 to 64, ranking slightly lower than the overall foreign-born population (80%) but higher than the native-born population (60%) [94]. The participants reported that they were employed in the travel, food, and real estate industries. A number worked in customer service within the travel industry, and others were self-employed business owners, while others held other positions across the industries. According to Zong and Batalova [94] "Koreans Americans are much less likely to be employed in natural resources, construction, and maintenance occupation or production, transportation, and material moving occupation" (p. 3). The sample included in this study mirror Zong and Batalova's [94] observation regarding Korean American occupational demographics.

**Figure 5: Years living in the United States and Hawaii**

Data Collection

The minimum number of participants who were eligible for the one-on-one session were interviewed to achieve the outcome of the pilot study and purposive sampling. The goal of the initial analysis was to understand the experience of KIW who participated in cervical cancer screening and their current engagement in routine Pap smear testing in Hawaii. A total of 42 interested KIW responded to the recruitment announcement of the study and contacted the researcher for a phone pre-screening. Twenty eligible KIW (N=20) met the inclusion criteria and were selected for a single interview session-choosing from three possible interview dates- that suited their schedule. Upon arrival for the interview session, the informed consent-which was written in both English and Korean language-was verbally explained in Korean, the participants' native language, by the researcher. Details of the

study, follow-up contact phone number, privacy, and security of data collection were articulated to the participants. The interview participants were then given the opportunity to withdraw from the interview or to continue, noting that they would be allowed to stop at any time if they felt uncomfortable. After the participant agreed to participate in the study, they signed the study consent form, and were provided a brief orientation including details such as the locations of the nearest restroom, emergency exit, and facility security guard.

Data Analysis

This study identified emerging themes in KIW perceptions and behaviors to cervical cancer screening and the HPV vaccination as a cervical cancer prevention method among KIW in Hawaii. NVivo, a qualitative data analysis software, was used to organize, categorize, sort, and code data for emerging themes. Questionnaire and narrative responses were sorted to classify the data into codes based on the research questions regarding KIW's health perceptions and health behaviors based on their cognitive appraisal, cultural health concept, and health approach to seeking cervical cancer health services. Responses to the interview questions and demographic questionnaires revealed study participants' fear and negative feeling toward the invasive cancer screening and cultural perceptions of humiliation toward the cervical cancer screening tests as well as HPV vaccination to reveal assumption of having multiple sexual partners or having sexually active status.

All 20 participants agreed on the importance of cancer preventive screening and admitted that they had been practicing positive non-medical activities such as healthy dieting, regular physical exercise, and maintaining a healthy body weight. All participants also agreed that cervical cancer screening such as the Pap smear test is necessary, but felt it was invasive and intrusive. They expressed a desire for a more comfortable service, rather than the typical delivery of these screening, which leaves them feeling rushed through the process without adequate explanation or support. Similar to a study by Steele, Townsend, Tai, & Thomas [95], the participants- like many other Asian Americans- are more likely to receive blood pressure checks, the influenza vaccine, blood glucose and cholesterol checks, and bone densitometry screenings more regularly than mammography and Pap smear screening. Responses to the research questions revealed the participants' previous Pap smear experiences of fear, discomfort, feeling of rushed, and perceptions of humiliation, invasion of privacy, and uneasiness with male gynecologist toward cervical cancer screening including HPV vaccination option.

Research Question 1: Health Perception

The participants revealed and explored their health beliefs through the lens of Korean culture. Culture is a powerful, comprehensive, dynamic, and multifaceted construct that influences people's beliefs, attitudes, and behaviors [96]. Compared to Koreans living in Korea, the health risk of Korean Americans living in Hawaii is influenced by different lifestyles, diets, work-related factors, and various family and social support systems. Based on their traditional perceptions of Korean women's health, the importance of blood and kin relationship are stressed [97]. For example, the participants in this study assumed there were special health correlations between their mother, sisters, and aunts. One participant commented, "I do not worry about getting cancer

because my mother has excellent health without any history of cancer" (age 24). Another participant commented, "I finally decided to go to see my doctor for a cancer screening because my sister had breast cancer before, and I should listen to her health advice to get cancer screening" (age 32).

Table 6: Summary of Health Perception

Category	Subtotal (n)	Percentage (%) N=20
Health Condition		
Good	10	50
Fair	7	35
Poor	1	5
Not sure	2	10
Preferred a Korean Physician		
Yes	7	35
No	13	65
Preferred a MD who speaks Korean		
Yes	11	55
No	9	45
Preferred a female Gynecologist		
Yes	13	65
No	7	35
Health Insurance		
Yes	18	90
No	2	10
Healthcare Service Payer Source via health insurance		
Employer	6	30
Spouse's job	2	10
Self	6	30
Government	4	20
Parents	1	5
N/A	1	5
English Proficiency		
Basic	6	30
Short conversation	7	35
Fluent	7	35
Awareness of definition of Pap smear		
I know	13	65
Not know	6	30
N/A	1	5

The most important emerging themes in the interview data related to factors influencing participants' perceived susceptibility, perceived benefits, perceived barriers, and women's health knowledge. For example, one participant commented, "I did not want to have the Pap smear test for many years even though my health insurance covers the cost because I felt that I do not need it. When my healthy sister was diagnosed with breast cancer last year, I was scared that anyone can have a cancer. I regretted that I have avoided the Pap smear test and the mammogram all this time. Now I do the tests routinely. These cancer screening were suggested by my doctor, and the cost was covered by the insurance" (age 41).

Perceived susceptibility relates to participants' beliefs that they were not susceptible to cervical cancer due to their healthy lifestyles and diets, routine physical exercise, and good conduct. Those who perceived themselves as susceptible to cervical cancer were reluctant to express that their assumptions were related to

unsafe sexual activity with multiple partners. Perceived benefits that arose when some of the participants visited Korea to receive a full health check-up including cervical cancer screening-with or without Korean government insurance-which is much more affordable than paying for U.S. health insurance coverage. There were a number of perceived barriers, including participants' unawareness of needs, widespread distrust of U.S. healthcare systems and doctors, unkind healthcare providers, limited English language proficiency, financial burdens, and personal discomfort when positioned for a cervical cancer test. Finally, limited knowledge of the cause of cervical cancer made participants more susceptible to accepting incorrect knowledge and cultural myths. This knowledge issue was amplified by the difficulty participants faced when attempting to access health information resources. Korean women are more vulnerable to feel the stresses of adhering to social norms and avoiding stigma related to their body weight and shape [98]. According to Y.S. Yoon and Oh [99], the increasing prevalence of Body Mass Indexing (BMI) in Korea has identified changes in Korean women's obesity trends linked to lifestyle and dietary habits across 2003 and 2013. The BMI of Koreans, however, remains in the relatively low to acceptable ranges as compared to other developed countries. Interestingly, almost all of the interview participants who were without current medical problems appeared to be slim or within average body shape-certainly within what the BMI would consider an acceptable range- but only 50% of the participants (n=10) considered themselves to be in good health, as indicated in Figure 6.

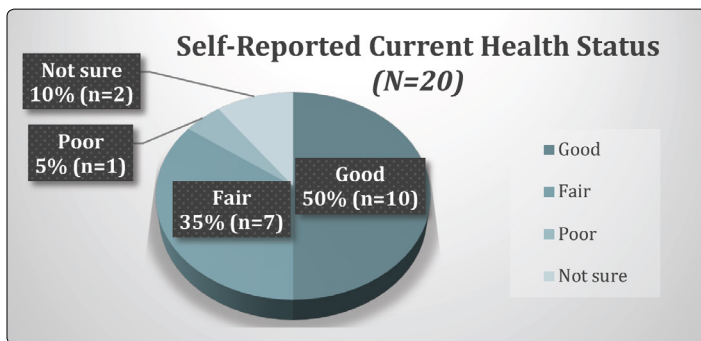


Figure 6: Self-reported current health status

Recently the health perception regarding women's cancer-preventive cares significantly well-discussed among close friends and relatives even though KIW's health expectations related to their physical appearance seems to be the important concern in their culture. Most of the participants alluded to their desire to lose weight, even when interview questions were not related to their physical appearance or the body weight. For example, one participant exclaimed, "I need to lose weight, and I have been struggling to lose weight for years. I do not go to see the doctor because he might point out my weight" (age 36).

Significantly, 65% of the participants (n=13) prefer a female gynecologist, but only 35% of the participant (n=7) prefer Korean-speaking physicians for women's health issue and the Pap smear test. The factor of having a female gynecologist for women's health issue is more important than Korean-speaking physician. For example, one participant commented, "I feel very uncomfortable to discuss my gynecology issue with a male physician. I do not mind talking to American physician, but I

prefer female gynecologist. Unfortunately, I do not find any female gynecologist here in Hawaii. It is the reason why I go to Korea to receive gynecology treatment" (age 52). Another participant also revealed that "the Korean community in Hawaii is pretty small. We mostly know each other, and we have the only a handful of Korean doctors. I do not want to go to the Korean doctors for a Pap smear because it is an invasive procedure that makes me uncomfortable. I also do not want to answer confidential information like how many sexual partners I have had or whether I have multiple sex partners to Korean doctors who may know my family or me" (age 47). The study participants had varying levels of English language proficiency. 30% stated they speak English at a basic level; 35% are able to speak using short sentences; and 35% are able to speak English fluently. A participant reported, "I only speak a basic level of English and am afraid of going to the doctor's office. I usually bring my friend to go to doctor's office, but it is very inconvenient. It is a reason why I go to Korea during summer vacation to get the health checkup together. Even without the National health insurance, the medical cost is still affordable as a visitor. I also receive some medical treatment in Los Angeles where there are several Korean hospitals. I wish we have a Korean female doctor in Hawaii" (age 55).

In 2015, approximately 52% of Korean immigrants reported limited English proficiency, compared to 49% of the overall foreign-born population [94]. Korean and Chinese elders are especially vulnerable, as poor English proficiency is associated with poorer health outcomes such as non-compliance of medication regimen, mistrust of treatment plan, and missing follow-up appointment compared to the national norms [100]. 35% of the participants (n=7) reported that they did not know what a Pap smear test was, nor its purpose. A participant, for example, stated, "I have heard about the Pap smear test before, but it is difficult to understand the medical term both in English and in Korean. I was able to understand when my gynecologist explained what it is with a picture. I am glad that I have the gynecologist who speaks Korean" (age 23). The 65% of participants (n=13), however, reported that they had heard of the Pap smear test minimally or had previously received the screening without fully understanding the test. Cervical cancer screening literacy is a factor that contributes to KIW avoidance of routine Pap smear testing [101]. Generally, KIW feels comfortable with male physician for general medical services that they perceive more authority and trust from male dominant medical field in Korea. For women's health issue, however, KIW prefer female physicians. As cultural- and gender-specific cancer screening intervention increases the cancer screening rate among KIW [102]. KIW in Hawaii also need female gynecologist for the Pap smear test and the follow-up service of women's health issue.

Research Question 2: Health Behaviors

The cancer screening rates of KIW are far below the overall rates of U.S. citizen. Relatively speaking, KIW have lower breast and cervical cancer screening rates, higher breast and cervical cancer prevalence, and lower survival rates than other ethnic groups in the United States [103]. In many studies, KIW's cervical cancer screening compliance, such as the Pap smear test, is significantly lower than non-Hispanic white, Hispanic-Latino, and American Indian/Alaska Native [104]. Although almost all of the participants (85%, n=17) in this study perceived their health condition as fair to good and believe that the cancer screening is an essential

preventive measure, they are concerned about language barriers and financial burdens. The desire for free or inexpensive screening services that are primary reasons KIW visit Korea to receive the cancer screening and other healthcare services. Notably, one of the participants reported that “I envy Koreans in California and New York where they can get the medical services through cash payment and kind customer services by Korean staffs. There are many female providers and Korean gynecologists as well” (age 33). Although obstetrician-gynecologists (OB-GYNs) are the fourth largest group of healthcare physicians dedicated solely to women’s health care [105], the number of available female OB-GYNs is limited in Hawaii.

Table 7: Summary of Health Behaviors

Category	Subtotal (n)	Percentage (%) N=20
A Recent visit to a Physician		
< 6 month	12	60
6 month – 1 yr	6	30
2 yrs – 5 yrs	1	5
> 5 yrs	1	5
A Recent visit to a Gynecologist		
< 6 month	8	40
6 month – 1 yr	7	35
2 yrs – 5 yrs	2	10
Not seen	3	15
Routine Check-up of General Health Screening		
Yes	11	55
No	5	25
No answer	4	20
Visit Korea for General Health Service		
Yes	4	20
I would	4	20
No	12	60
Access Health service in English		
By myself	13	65
Bring a friend	6	30
Request a translator	0	0
N/A	1	5
Primary Source of Health Information		
Mass media	6	30
Family/Friends	9	45
Local health clinics	5	25
Last Pap Smear Screening		
< 6 months	5	25
6 months – 1 yr	3	15
1 yr – 3 yrs	8	40
3 yrs – 5 yrs	1	5
Never Done	3	15
Routine Pap Smear Screening		
Yes	13	65
No	6	30
Never done	1	5
Awareness of HPV vaccination		
Yes	13	65
No	7	35

While cervical cancer prevention behaviors have been investigated in various studies, many people do not engage in cancer risk-reduction behaviors nor routine screening. According to Sentell and Braun [106], cancer prevention beliefs and limited health literacy may undermine cancer prevention behaviors. Misguided cancer prevention beliefs are influenced by myths such as (a) the prevention is not possible; (b) cancer is fatal; (c) there are too many recommendations for cancer prevention; and (d) after all everything causes cancer [106]. The interview participants shared similar problematic cancer prevention beliefs: this is dangerous because health perceptions influence health behaviors, as illustrated by the emerging patterns among KIW. A majority of the participants reported that 60% of participants (n=12) visited their primary physician regularly and the recent visit was less than 6 months ago. 40% of the participants (n=8) visited gynecologist for general women’s health issue less than 6 months ago. 65% of the participants (n=13) reported that they had received a Pap smear screening and are aware of the HPV vaccination. 15% of the participants (n=3), however, had the Pap smear test even though they were at risk age group for cervical cancer. 45% of the participants (n=9) had the Pap smear test more than a year ago that they did not engage routine Pap smear test. A participant stated, “I go to the doctor whenever I need, but I do not want to go to see a doctor just for the Pap smear screening” (age 43). Despite cervical cancer being identified by the CDC [33] as a highly preventable female cancer with regular screening tests and follow-up, there has been an overall small, decreasing trend in women who report having had a Pap smear test within the past three years [54].

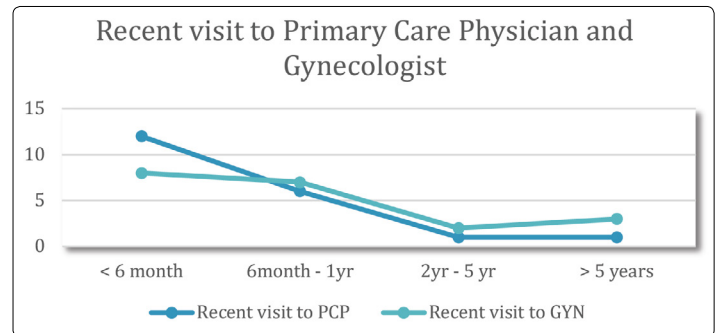


Figure 7: Recent visit to physician and gynecologist

A majority of the participants who lived in the U.S. and Hawaii longer than five years have received regular physician check-ups including gynecologist services. Language ability was a contributing factor, as these participants have English language proficiency, though their abilities range from excellent to little. This pattern aligned with the findings of Juon, Seo, and Kim [108] who found that Korean American women who have excellent or low English ability are at 2.91 times greater odds of having a Pap smear than those with no English proficiency. Another study suggested that higher levels of acculturation are associated with increased cervical cancer screening rates among Asian women population in the United States [102]. 40% of the participants reported that they go, or would prefer to go, to Korea to receive the Pap smear screening and wellness check-ups. They stated that they would like to take advantage of Korean National Health Insurance Services for wellness check-ups and preventive care services in Korea, which covers health care services through relatives’ health insurance or are at affordable rates for visitors to Korea. A participant reported,

“especially I love to get dental services in Korea, particularly, dental surgery and implant services. The cost was much affordable in Korea than America. I also love to get all cancer screening in Korea that I can utilize my family and relatives’ the Korean government health insurance” (age 28).

A study by Carrasquillo and Pati [109] showed that the relationship between acculturation and having a recent Pap smear screening with respect to U.S health insurance is complicated, which explains why the screening rate is significantly lower among uninsured foreign-born women as compared to their uninsured U.S.-born counterparts. In this study, however, the participants argued that the cost of health insurance was not as prominent of a barrier as other studies suggest. One participant explained, “I do have health insurance and money to pay for the Pap smear test. I have lived in Hawaii for more than ten years and spoke English well. The reason I avoid going to the doctor for the Pap smear because my doctor is a male that I do not feel comfortable to have an invasive procedure by the male doctor” (age 60). Despite having U.S. health insurance, English proficiency, and longer years of living in Hawaii, 40% of the participants had not engaged with the routine Pap smear test, even when they understand the importance of cancer screening and prevention measures. Non-compliance of Pap smear testing appears to be strongly related to KIW perceptions and culture. The findings of Y. S. Lee and researchers’ [110] study, which reported an association between length of residency and cervical cancer among Korean Americans, appears to be insignificant in the context of this study.

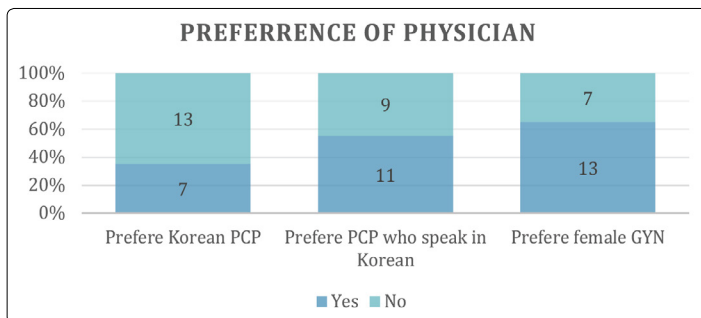


Figure 8: Preference of physician

Discussion

According to the American Cancer Society [74] an estimated 13,240 new cases of invasive cervical cancer will be diagnosed in the United States in 2018. The Pap smear test is an effective screening method in detecting early stage precancerous cervical cells [35], and its implementation has proven to significantly reduce cervical cancer deaths and promote cervical cancer prevention measures in the United States. Despite these favorable outcomes, the Pap smear screening test rate among KIW is significantly lower than other minority ethnic groups [111]. The purpose of this study was to identify the perceptions and experiences of KIW regarding cervical cancer screenings with the goal of identifying culturally responsive interventions that may encourage KIW to participate in routine health checkups. Understanding the cultural backgrounds and social norms influencing health practices is critical to identifying how Pap smear screening programs in Hawaii can be tailored to better serve diverse constituents and thereby reduce cervical cancer mortality rates among KIW in Hawaii.

Findings from the study revealed that KIW (a) have a gender preference of physicians when it comes to women health issues; (b) were highly motivated to maintain physical health, including prevention; (c) preferred culturally appropriate community-based cancer prevention programs; and (d) expected innovative health maintenance approaches. Koreans tend to prefer older male physicians for their general medical services [112]. For women’s health issues, however, participants in the study revealed that they preferred a female gynecologist and Korean-speaking physicians. KIW participants reported feeling more supported by and close to female gynecologists when receiving medical advice including encouragement of cervical cancer screening. According to Levy and Janke [113], acculturation and health literacy predicted health care access and compliance with follow-up health maintenance engagement in cancer screening behaviors. The study findings supported that KIW who have lived in Hawaii and/or United States longer than 5 years tend to engage more with cervical cancer preventive measures including the follow-up maintenance.

Generally, KIW face with similar physical risk factors compared to other Asian populations [114]. However, psychosocial risk factors such as cultural beliefs about cancer causation, including God’s will, fate, or punishment as a result of conduct stemming from Korean culture and its associated health practices, may differ. KIW in Hawaii experience numerous challenges and barriers when accessing health care services for preventive measures. Hawaii had one of the lowest uninsured rates at 3.53% [115] compared to the national average of 11.7% in the United States in 2017 [116]. Similar to the residents in Hawaii, most of the study participants were currently insured and revealed that health insurance was not a contributing factor to their avoidance of cervical cancer prevention measures. The study findings showed that KIW were prepared to pay for health services in cash if they are without health insurance, and they were willing to fly back to Korea to receive annual health checkups including various cancer screenings at an affordable price. Korea is emerging on the global health care market as the country that offers quality health care services including diagnostic tests with advanced medical technologies at relatively affordable costs [117]. Many Asian health care consumers visit Korea for plastic surgery. Korea holds a quarter of the world’s market share in the plastic surgery industry, valued at 9 trillion Korean Won [117]. For KIW, like other nonnative English speakers, the linguistic barriers negatively influenced access to health information, including awareness of the option for vaccines that protect against HPV infection. Almost all cervical cancers are caused by direct or indirect persistent infection with certain types of HPV even though HPV infections are common in healthy women and rarely advance to serious cervical cancer [4]. The ACS [74] reported that regardless of whether a woman has one or multiple sex partners, there is a likelihood of being affected by HPV via various unknown causes. Increasing risk of persistent HPV infections and progression to cervical cancer may be related to suppression of the immune system, cigarette smoking, long-term use of oral contraceptives, and multiple childbirth [74]. The HPV causes almost 90% of cervical cancers, in addition to other diseases and cancers. Physicians recommend administering HPV vaccinations to teenagers between the ages of 11 and 12, though it is available for use in young teen and adults between the ages of 9 and 26 [82]. The CDC [118] recommended two doses of the HPV vaccination for individuals ages 9 to 14, and three doses for those ages 15 to 26.

The HPV vaccination rate is still low, particularly for the ethnic minority population [119]. In 2016, only 36% of U.S. girls received the HPV vaccination by age 13 [120]. Most precancerous cervical cancer conditions develop slowly. Therefore, routine screening is essential to detect cervical cancer and to prevent further degradation of health. All women, regardless of whether they received the HPV vaccination, should engage in routine Pap smear testing as directed by cervical cancer screening guidelines [121]. In terms of culturally appropriate health care approaches, most studies indicated that a health care coordinator who assists with routine cancer screening, reminders, educational resources, and follow-up visits would be beneficial [122]. The health care coordinators or community health workers who speak the same language as service recipients assist minority elders with culturally sensitive interventions [123] and ensure health care service engagement. Typical linguistic services or interpreters are not sufficient because they are available only on an intermittent basis and do not include important factors of education and follow-ups. Community-based cervical cancer screenings at local community health centers are effective for ethnically diverse women [124]. A multicomponent intervention combining individual and community-based cancer prevention education with navigation services yielded significant increases in cervical cancer screening rates among Korean American women in the United States [125]. Finally, using innovative Internet-based approaches, such as Korean web blogs, social networks, podcasts, and YouTube, to disseminate cancer prevention information may yield a greater response from KIW, especially in younger generations that are more adept at technology [126]. Jeong, Cha, and Lee's [127] study showed the effectiveness of STI education and prevention education on Korean young adults using internet-based smartphone application. Another study showed that culturally competent Internet cancer support groups influence positive health outcomes and improve health compliance for Korean young adults [112].

Conclusion

This study suggests that KIW tend to share healthcare information and alter their patterns of behavior regarding cervical cancer screening and preventive care measures to align with cultural norms and social expectations. To capitalize on these social implications, Hawaii could adopt culturally responsive cervical cancer screening approaches across its 14 Federally Qualified Healthcare Centers (FQHC). These local FQHC offer preventive screenings and follow-up services for minority populations with limited healthcare insurance, low socioeconomic status, and linguistic barriers; with carefully planned interventions—including partnerships with cultural—and community-based organizations, the use of navigators, increased numbers of female and bilingual healthcare providers, and innovative communication approaches—it may be possible to better empower KIW and other minority immigrant women to increasingly engage in women's health practices in the U.S. In this regard, culturally- and ethnically responsive prevention approaches may help Hawaii's State Department of Health to achieve its goals of improving the mortality and morbidity rate of diverse minority populations, including that of Native Hawaiians. Significant health disparities in cervical cancer mortality and incidence rates exist among KIW. Asian American women have one of the lowest cancer screening rates and the least attention given in cancer-related research, despite their being the fastest growing populations in the United States

[95]. Cancer screening disparities among KIW in Hawaii have been attributed primarily to the population's lack of knowledge about the U.S. healthcare system, lack of access, limited resources [128] regarding cervical cancer screening in Korean, cultural and psychosocial beliefs, lack of female and Korean-speaking providers, and access barriers such as language and health insurance.

This pilot study suggests the new intervention—specifically those involving community-based cultural approach with bi-lingual intervention—can be developed to increase KIW cervical cancer screening rates and follow-up commitment to maintain routine testing. It is important to note, however, that providing educational interventions without addressing access barriers may not yield sufficient results. Hence, public health interventions that emphasize the access to community-based facilities, community health navigators or community care coordinators (individuals including lay health workers with culturally and linguistically appropriate approaches) may enhance effective cervical cancer screening rates and positive health outcomes. These important findings of the study should motivate more research for future interventions to increase Pap smear and HPV vaccination awareness and to address health disparities among minority population.

Acknowledgments

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