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Saving lives: Assessing knowledge and awareness of cervical cancer among women in low income families in Clark County, Nevada

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SAVING LIVES: ASSESSING KNOWLEDGE AND AWARENESS OF CERVICAL CANCER AMONG WOMEN IN LOW INCOME FAMILIES IN CLARK COUNTY, NEVADA

By

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ABSTRACT

Saving Lives: Assessing Knowledge and Awareness of Cervical Cancer among Women in Low Income Families in Clark County, Nevada

By

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Studies have reported low participation in cervical cancer screening of low-income women, but few of them have addressed lack of knowledge on cervical cancer. The goal of this study is to assess knowledge and awareness of cervical cancer among women in low-income families in Clark County, NV. Fifty women in low-income families who were English-speaking and were enrolled in the WIC program were interviewed. Questions addressed were: knowledge on cervical cancer, Pap smears practices, insurance coverage, and knowledge about free/low-cost Pap tests in the state. The Majority of women were minorities (74%) and the mean age was 25.3 (SD=6.44). Seventy-six percent of women had less than a high school education or higher. Only 58% of women had heard about cervical cancer. Overall, women knew little about the associated risk factors for cervical cancer, the HPV virus, or the availability of the States' resources for cervical cancer screening. Knowledge of cervical cancer on each of the mentioned areas may enable Clark County to reduce incidence and death rates from cervical cancer.
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ABBREVIATIONS

AIDS Acquired Immune Deficiency Syndrome
ACS American Cancer Society
CDC Center for Disease Control and Prevention
DK/NS Don’t Know/Not Sure
FDA Food and Drug Administration
HIV Human Immunodeficiency Virus
HP2010 Healthy People 2010
HPV Human Papilloma Virus
KFF Kaiser Family Foundation
KSHF Kaiser State Health Facts
NBCCEDP National Breast and Cervical Cancer Early Detection Program
NCI National Cancer Institute
NCC Nevada Cancer Council
NVHC Nevada Health Centers, Inc.
NIH National Institute of Health
NSHD Nevada State Health Division
SNHD Southern Nevada Health District
SCP State Cancer Profile
UNLV University of Nevada, Las Vegas
USPSTF United States Preventive Task Force
WHC Women Health Connection Program
WIC Women, Infant, and Children Program
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CHAPTER 1

INTRODUCTION

Background

Although studies have reported a low participation level in cervical cancer screening among low-income women, few studies have addressed the issue of knowledge concerning cervical cancer (Suarez et al., 1997). Cervical cancer remains to be the second most common type of cancer in women worldwide after breast cancer (Canavan and Doshi, 2000). According to Rudolph, “early detection, appropriate intervention, and adequate follow-up treatment make cervical cancer one of the most preventable of diseases” (Rudolph et al., 1993, p. 156). Lack of knowledge and awareness of cervical cancer screening are the major factors that lead to low screening participation (Suarez et al., 1997). If only women would know that cervical cancer can be prevented, public health education efforts could be focused on other types of cancer. Knowledge is power, as any basic knowledge of certain diseases can help not only in the prevention process, but also in the cure of those diseases.

As of 2003 cancer was the number two cause of death in the United States with a total of 556,902 deaths (22.7% of all deaths) exceeded only by heart disease (Cancer Statistics 2006, ACS 2006). According to the American Cancer Society (ASC), in the United States it is estimated that, in 2006, an average of 9,710 new cases of cervical cancer will be diagnosed, and an estimate of 3,700 women will die from the disease.
This is a major public health concern because cervical cancer is one of the most preventable types of cancers. However, it is important to note that "there is no one simple route to prevent cervical cancer" (Cohen, 1996, p. 1868). Cervical cancer is not a type of cancer that can be prevented by one behavior; instead, risky sexual behaviors, lack of screening and on-going screenings are all behaviors that play a role in cervical cancer onset.

This study is unique in the sense that it examines the knowledge and awareness of cervical cancer among women in low-income families Clark County, Nevada. No other studies have been conducted to address the issue of knowledge among this group of women in the region. This population is at high risk for not obtaining cervical cancer screenings and for lack of knowledge about the importance of these exams.

According to the U.S. Census Bureau, as of 2005, Nevada’s population estimate was 2,414,807 persons, with 49.1% of those people being females. Clark County was reported to have a total of 1,710,551 persons, with 49.1% of those people being females as well (U.S. Census Bureau, 2005). An explosive growth in the Asian population of Nevada has dramatically increased by 123.7% to 88,208, while the Hispanic population rose by 144.6% to 304,364 in part due to job availability from the gaming industry. In Clark County alone, the Asian population has risen by 139.3% to 64,636, while the Hispanic population has increased by 164.3% to 219,075 (CNN News Article, US Census Bureau 2005). With these numbers on the rise, the need to increase knowledge and awareness of cervical cancer in Clark County cannot be ignored.

Since "cervical cancer is one of the few essentially preventable forms of malignant diseases" (Cohen, 1996, p. 1868), it is imperative that all women be educated.
about the steps they can take to protect themselves against the disease. Most low-income
women face more challenges in accessing care in large degree because of the lack of
healthcare professionals in their communities that conduct outreach and education
programs. This thesis summarizes the results of a study that has been completed to
assess knowledge levels and awareness of cervical cancer among women in low-income
families in Clark County, Nevada.

The target population in this study is women in low-income families residing in
Clark County, NV. The study sample was obtained from women who participate in the
Special Supplemental Nutrition Program for Women, Infant, and Children (WIC) in
Clark County, NV. In collaboration with the Nevada Health Centers, Inc. (NVHC), the
researcher was able to gain access to one of the WIC clinics in Clark County, NV. WIC
is a federally funded, short-term nutrition program whose objective is to improve the
health of women, infants and children who are low-income. As of July 2006 the WIC
guidelines state that in order to meet the minimum qualifications, a family size of one
must be making a gross annual income of $18,130.00. As the number of family size
increases, so does the annual gross rate (Nevada State Health Division WIC program,
Research Questions and Hypotheses

**Research Question 1**: What is the level of knowledge about cervical cancer among women in low-income families in Clark County, NV?

**Hypothesis 1a**: The women surveyed that have heard about cervical cancer will have knowledge of at least 50% of the associated risk factors for cervical cancer.

**Hypothesis 1b**: The source of information about the associated risk factors for cervical cancer is equally distributed among women who have heard about cervical cancer.

**Hypothesis 1c**: Fifty percent of the women surveyed that have heard about cervical cancer will have knowledge of the state assistance programs that provide cervical cancer screening services to qualified/low-income women.

**Research Question 2**: What is the distribution of demographic characteristics and the level of knowledge for cervical cancer among women in low-income families in Clark County, NV?

**Hypothesis 2a**: Observed populations are equal to expected populations in their level of knowledge for cervical cancer in terms of Race/Ethnicity.

**Hypothesis 2b**: Observed populations are equal to expected populations in their level of knowledge for cervical cancer in terms of Education.

**Hypothesis 2c**: Age is positively correlated with the level of knowledge for cervical cancer among women in low-income families in Clark County, NV.
CHAPTER 2

LITERATURE REVIEW

Overview on Cervical Cancer

According to the Center for Disease Control and Prevention (CDC), cervical cancer occurs when a growth of abnormal cells take place, and grow out of control inside a woman's cervix (CDC, 2006). In this case cervical cancer can only occur among women, since the cervix is uniquely female. In a simple definition, cervical cancer is cancer of the uterine cervix (American Cancer Society, 2003). Usually, cancer of the cervix forms very slowly, within a span of years. Almost any woman who has a cervix can get cervical cancer, if she or her sexual partner has had sex with several other partners (CDC, 2006).

At the present, the exact reasons as to why women develop cervical cancer are not fully understood. However, “cervical cancer is a sexually transmitted disease (STD) that is highly associated with the human papilloma virus (HPV)” (Cohen, 1996, p. 1868). Many cases of cervical cancer are caused by the HPV virus. There are a number of HPV viruses, of which only a few of them are important and commonly associated with cervical cancer. Of those associated with cervical cancer, their risk category is grouped into high grade, intermediate grade, and low grade (Canavan and Doshi, 2000). In many cases a woman’s body may rid itself of the HPV virus (CDC, 2006). However, if the virus persists, normal cervical cancer cells may gradually change into abnormal cells, and
hence become precancerous cells (CDC, 2006).

According to the CDC, the risk factors of cervical cancer include: infection with certain types of the HPV, having multiple sex partners, having many full term pregnancies, a long term use of oral contraceptives, infrequent Pap test, early sexual onset, not following up any abnormal test results, and diets that lack fruits and vegetables (CDC, 2006). Other risk factors that are reported to be highly associated with cervical cancer include: low socioeconomic status, lack of health insurance coverage, HIV infection, Chlamydia infection, being low-income and having a family history (ACS, 2006).

Research indicates that the early stages of cervical cancer can be asymptomatic (Canavan and Doshi, 2000). However, if untreated abnormal cells can develop into cervical cancer cells, and the symptoms may include: abnormal vagina bleeding, smelly vaginal discharge, pain or discomfort during sexual intercourses, and vagina bleeding after menopause (CDC, 2006). In most cases, cervical cancer can be detected through the use of the Pap smear screening test. During this test a small sample of cells from the surface of the cervix is collected and spread on a slide or mixed in a liquid and sent to the lab for an evaluation of any abnormal cells. The U.S. Preventive Task Force (USPSTF) recommends cervical cancer screening at least once every 3 years within 3 years of sexual onset, or age 21, whichever comes first (CDC, 2006).

According to the National Institute of Health (NIH) carcinoma of the uterine cervix can be a serious health problem (NIH, 2006). Treatment options for cervical cancer come in a number of ways, depending on the stage of precancerous cells. The primary therapies for cervical cancer are: surgery, radiotherapy, or chemotherapy (NIH,
2006). In different cases these treatment options are usually combined in order to provide the best outcome possible. Other factors that determine the type of treatment that one may have are age and one's general health.

The utilization of the liquid-based thin-layer pap test has been introduced in the medical field and it is intended to reduce the rate of false-negative pap smear results, improve sensitivity and specificity of screening, improve adequacy of pap smear, improve laboratory productivity, and reduce operating costs in the long run (Nuovo et al, 2001). Nationwide, 13,000 women in the U.S. who develop cervical cancer annually, approximately 50 percent of them have never had a Pap smear test (Howell, 2001). Therefore, efforts to improve compliance with cervical cancer screening should include physician and patient reminders, education about the disease, and screening at visits not specifically intended for healthcare maintenance.

When women and their physicians are making important decisions about early detection, such as screening procedures and treatment options, a better understanding of the underlying risks of the condition being screened for, the effectiveness of the procedures in preventing an outcome such as death, and the potential ill effects of screening, such as a false positive test, ought be explained well to these women in order to clarify any previous misunderstanding about the screening program. Women should be made aware that cervical cancer can be prevented if detected early, a fact that many women do not seem to understand. Physician providers must make women aware of their increased risk of cancer as they age, and encourage them to get screened at least once every year.
The most current statistics from the National Cancer Institute indicate that a lifetime probability of developing cervical cancer among women in the United States in 2000–2002 was 1 in 135 (NCI, ACS 2006). Even though the probability of getting cervical cancer is low, the need to increase knowledge and hence eliminate the disease is very important owing to the fact that a Pap smear test can detect cervical cancer at its earliest stages.

The Role of CDC on Cervical Cancer

In order to save the lives of many women, Congress authorized the CDC through the Breast and Cervical Cancer Mortality Prevention Act of 1990 to provide regular breast and cervical cancer screening services to undeserved women. This includes older women, women with low incomes, the uninsured and underinsured women, and women of racial and ethnic minority groups (CDC, 2006). Amazingly, a large number of women are unaware of the free/low-cost cervical cancer screening services provided in their state of residence.

The CDC went further and expanded the program to provide screening services in all 50 states, in 5 U.S. territories, in the District of Columbia, and through 15 American Indian/Alaska Native organizations. By October 1997, the National Breast and Cervical Cancer Early Detection Program had provided an estimated 1.5 million screening tests across the country (NBCCEDP 1999, CDC 2005). Improving personal lifestyle by making changes in behavior is one of the tools that most women can use in order to fight the risk of having cervical cancer. Secondary prevention, through the use of Pap smear
tests, can help saving a woman’s life since the goal of these tests is to discover cervical cancer at its earliest stages.

The greatest challenge that remains is to educate women about the available screening services for cervical cancer. Even though there is enough information on the CDC web site about free breast and cervical cancer screening services, many low-income women do not have access to the Internet and computers in general. It remains of critical importance for health educators, healthcare providers, physician’s providers, nurse practitioners and community health centers, to provide information, education and expand the knowledge about cervical cancer and its available screening resources.

The Role of Healthy People 2010 on Cervical Cancer

Healthy People 2010 is an initiative document with a national strategy of improving health of the American people over the first decade of the 21st century. This initiative is designed to achieve two major goals: (1) to increase quality and years of healthy life, and, (2) to eliminate health disparities (Healthy People 2010, Nevada State Health Division, 2002). In the state of Nevada, Healthy People 2010 focuses on 20 areas of which one of them is cancer prevention. In 2000 25% of all Nevada resident deaths were from cancer. One of the goals of Healthy People 2010 in Nevada is to reduce the baseline of cancer deaths from 205 to 159 (Healthy People 2010-Nevada, Nevada State Health Division, 2002).

A major significance of this study is its relationship to one of the goals of Healthy People 2010 objective number 03-04, which is: To reduce death rates from cancer of the uterine cervix (Healthy People 2010, Objectives for the Nation) (Appendix II).
United States as a country has yet to achieve this goal and so Nevada, and particularly Clark County, has not achieved this goal either (State Cancer Profile, 2005). Therefore, it is imperative that Nevada form strategies to increase cervical cancer awareness, by starting at the county level. The only states which have closely achieved this goal are Alaska, Maine and Delaware, at 97% (Healthy People 2010).

The Introduction of the HPV Vaccine against Cervical Cancer

According to the CDC, the Food and Drug Administration (FDA) has recently approved and licensed the use of the HPV vaccine among girls/women, ages 9 – 26 (CDC, 2006). The vaccine is designed to be administered through a series of three shots over a period of six months. Many ethical questions have been addressed in relation to the use of the HPV vaccine. One major concern is that of giving the HPV vaccine to young women because they may interpret it as a passport to engage in premarital sex. More education on the HPV vaccine will need to be done as the vaccine does not prevent against other sexual transmitted diseases, such as HIV. Before we can provide education on the vaccine, the need to provide education on cervical cancer needs to be prioritized. In addition women should be informed of the fact that the HPV vaccine will not prevent one from getting pregnant. To young women, abstinence may be the best practice to prevent themselves against HPV infection. Pap tests are still recommended as the development of cervical cancer takes place very slowly.
The Importance of Cervical Cancer Awareness and Social Support

Many studies tend to show that social support is very helpful in coping with the stress of any chronic illnesses (Berkman et al., 1992, Cameron 1996, Fitzpatrick et al., 1991). In general, social support has a positive outcome on different aspects of one's health. In relation to cervical cancer awareness, social networks as a form of social support may contribute to emotional support for those women who are diagnosed with abnormal Pap smears. Most women with cervical cancer have no public voice as there are no active lobby groups for cervical cancer as there is for AIDS or breast cancer (Cohen, 1996).

Cohen (1996) discusses the challenges of raising cervical cancer awareness by making detailed comparisons with breast cancer, such that there is no “ribbon campaign” for cervical cancer, and “no national society to raise funds for research, patient education and advocacy” (Cohen, 1996, p. 1868). For example “in Canada, cervical cancer must compete against all other types of cancer for funding and resources” (Cohen, 1996, p. 1868). In general, breast cancer advocates have succeeded in forming social networks and social support in the fight against the disease. For example, two focus groups in the study against breast cancer in North Carolina have applied the social network and social support theory by having women help each other when dealing with women’s health issues (Tessaro et al., 1994).

Similar strategies need to be applied in the process of increasing knowledge, awareness and support of cervical cancer among women else where in the nation. Information about cervical cancer needs to be passed on from different channels of communication. It is through information that people will find support and hence
increase their knowledge about the disease. The major goal of this study is: To assess knowledge and awareness of cervical cancer among women in low-income families in Clark County, NV. This goal can be accomplished by getting feedback from participants about their knowledge of cervical cancer, their understanding of the associated risk factors for cervical cancer, and their source of information about cervical cancer.

The challenge of eliminating cervical cancer goes far beyond the screening process. Research indicates that there is a general lack of understanding of what the Papanicolaus test is and why it is important (Cohen, 1996). Unfortunately, many women and some physicians fail to appreciate the fact that a Pap test makes a difference in saving a woman’s life since it is the only test that can be used to detect cervical cancer at its earliest stages. Also, women need to understand that screening is not the final treatment, and abnormal test results are supposed to be accompanied by a follow-up exam and recommended treatment (Cohen, 1996). Lack of knowledge and education about cervical cancer is a major public health issue that needs to be addressed.

A large number of women are not aware of the link between the risk factors for cervical cancer, the meaning of the HPV virus, and its association to the deadly disease. As a result most “women may not consider the receipt of an abnormal Pap smear as sufficiently serious to comply with any given health advice” (Fylan, 1998, p. 1510). On many occasions, women have reported not to participate in cervical cancer screening owing to lack of knowledge about the test and its indications; or considered the test to be unnecessary or of no importance (Fylan, 1998). It is therefore of prime importance that cervical cancer knowledge and awareness is increased through different channels of communication such as television, radio, newspapers, pamphlets, and brochures. Those
who are highly at a disadvantage of not receiving adequate information are often the uninsured, underinsured, and women from low-income groups.

Research suggests that “the accumulation of evidence of a causative link between the HPV virus and cervical cancer may serve to increase women’s feelings of resentment towards their partners and of being tarnished” (Fylan, 1998, p. 1510). Therefore, the fear of being judged by others may result in some women being unable to tell anyone of their abnormal Pap results due to lack of social support (Fylan, 1998). Also, lack of knowledge on cervical cancer has caused some women to think that they have the disease once abnormal pap results are found. This lack of a clear understanding continues further in women referred for colposcopy, with many women unaware of the main reason for a colposcopy test (Fylan, 1998). In this case, public health needs to take an educational approach and educate the society of the importance of understanding what cervical cancer really is. By influencing awareness and perceptions through public health education and creating appropriate environments for cervical cancer screening, a large proportion of personal perceived barriers can be reduce in the fight against cervical cancer (Yu and Rymer, 1998).

Further research indicates that younger women tend to have more knowledge of cervical cancer and its screening procedures than older women. On the other hand, the same study found out that the majority of younger women believe that cervical cancer screening can be either painful or embarrassing (Yu and Rymer, 1998). Another study that was done to understand if Mexican-American women had enough knowledge about cervical cancer discovered that knowledge about cervical cancer may vary with age, education, type of health insurance, ability to speak English, or place of birth (Suarez et
al, 1997). The same study reported that women of 65 years and older were the least knowledgeable of cervical cancer, cervical cancer detection methods, and screening guidelines (Suarez et al., 1997).

As expected, we learn that those women with poor communication skills and minimal health coverage were less likely to know the signs of cervical cancer, symptoms, its associated risk factors, and the recommended screening guidelines (Suarez et al., 1997). In the same study, most women with a recent screen reported to have knowledge of the disease as compared to their counterparts. And sadly, the majority of older Mexican-American women with fearful attitudes towards cervical cancer were less likely to have had a Pap smear (Suarez, 1997). Lack of awareness and clear understanding of the disease has resulted into a low participation rate of cervical cancer screening not only among low-income Mexican-American women, but also among women of other ethnic backgrounds who are considered low-income (Suarez, 1997).

The task to educate women about cervical cancer becomes more challenging for physician providers as most older women who have not been fully exposed to so much health education tend to think that disease is not present if there are no signs or symptoms, and therefore do not fully understand the importance of early detection (Redmond et al., 1997). In reality, cervical cancer screening practices depend highly on the interest, knowledge, and cooperation of the medical providers. According to the National Cancer Institute (NCI), Nevada will diagnose thousands of women with cervical cancer and that is why the need to identify the shortcomings of cervical cancer screening services that physician providers face is very important (NCI Facts and Figures, 2002).
Culture becomes a very important aspect while trying to expand knowledge of chronic diseases. Studies have shown that high mortality rates for cervical cancer among non-white women are highly associated with complex cultural and socioeconomic factors that women often face in inner-city communities (Rudolph, 1993). Those factors may range from lack of health insurance coverage to cultural attitudes and beliefs about cancer and its prevention methods. A good approach to learn more about women's attitudes about cervical cancer may require the need to assess attitudes and belief about cancer, and hence implement strategies that will fit their knowledge for cervical cancer (Rudolph, 1993). Cervical cancer death rates were higher for African American women (5.3/100,000) as compared to White women (2.5/100,000) in 1998-2002, producing a ratio of 2.1 (NCI, ACS 2006). Also, cervical cancer survival rates for Whites was estimated to be 75% while that of African American was estimated to be 66%, resulting into a difference of 9% (NCI 2005, ACS 2006).

Worldwide, cervical cancer awareness becomes less of a challenge in the U.S., Canada and Europe, as it is with other parts of the world. A large number of developing countries lack the skills and advanced technology for cervical cancer screening. In most poor countries, women are reported to be hesitant to access screening because they perceive cervical cancer as synonymous with death (Lewis, 2004). Many lives will be saved if only women knew that cervical cancer is fully preventable and curable and when screening services and associated treatment options are available.
Cervical Cancer in Nevada

Cervical cancer remains the second most common cancer of women in the United States, after breast cancer (Fylan, 1998; Canavan and Doshi 2000). According to the Kaiser Family Foundation (KFF), cervical cancer mortality rate per 100,000 women, 2003 was 1.5 in Nevada, while the United States as a country cervical cancer mortality rate per 100,000 women was 2.4 (Cervical Cancer Mortality Rate per 100,000 women 2003, Kaiser State Health Facts, KFF 2004). In general, Nevada ranks number 27 in the nation in cervical cancer death rate, while Kentucky is number 1 (3.1/100,000) and Massachusetts is number 38 (1.0/100,000), (KFF, 2004). On the other hand, cervical cancer incidence rate per 100,000 women in 2002 was 8.9 making Nevada rank number 11 in the nation, while the United States as a nation had an 8.7 cervical cancer incidence rate per 100,000 women in 2002. Alabama ranks the least at 10.6 while Utah ranks the first at 4.9 (Cervical Cancer Incidence Rate per 100,000 women 2002, Kaiser State Health Facts, KKF, 2004).

As of June 2005, the total number of women who received a Pap smear test through the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) was 30,431 in Nevada. Among those screened, 880 women were reported to have abnormal Pap results, and in the end, 315 cervical cancer precursors were detected (CDC, 2006). With these high numbers, the need to increase awareness of cervical cancer screening needs to be one of the state’s healthcare agenda in the hope of reaching Healthy People 2010 objective # 03-04 of reducing death rates from cervical cancer.

As of June 2005 women who received funded Pap test from the NBCCEDP cervical cancer screening rates for Nevada were higher among Hispanic women at
51.4%, followed by Whites at 35.7%, Blacks at 7.0%, Asian/Pacific Islanders at 4.2%, and American Indian/Alaskan Natives at 1.2%. Those of unknown ethnicity were 0.3%, and those of multiracial were 0.2% (Cervical Cancer in Nevada, CDC 2006). These statistics provide an explanation as to which ethnic groups receive the free/low-cost Pap smear test the most. However, it is too early to make such conclusions that those receiving the services in a large number are the ones who are more knowledgeable of the services and the disease. The age distribution indicates that the majority of women who have received free/low-cost cervical cancer screening services in Nevada as of June 2005 were from 40-49 (49.7 %), followed by ages 50-64 (38.1%). Other age groups with a low participation rate included: under 30 (4.9%), 30-39 (4.5%), and those above 65 were (2.95) (Cervical Cancer in Nevada, CDC 2006). Through extensive knowledge and awareness of the disease, Nevada, and specifically Clark County, will achieve a high participation-screening rate that is equally distributed among all races and all ages.
CHAPTER 3

METHODOLOGY

Study Design

The study was conducted using quantitative research methods. A survey instrument was developed in order to collect data about cervical cancer knowledge and awareness among women in low-income families in Clark County, Nevada. The survey instrument was developed after an extensive literature review from January 2006 to July 2006. Data were collected starting August 16, 2006, after an approval from the UNLV IRB Board on August 15, 2006 (IRB Number 0607 - 2031). Data collection ended on August 31, 2006. Data were collected from the assigned WIC office from Mondays through Fridays, during regular office hours of operations, which are 8am to 5pm.

Research Question 1

What is the level of knowledge about cervical cancer among women in low-income families in Clark County, NV? In order to find an association, each variable was measured to address the following hypotheses: (H1a) - The women surveyed that have heard about cervical cancer will have knowledge of at least 50% of the associated risk
factors for cervical cancer; (H1b) - The source of information about the associated risk factors for cervical cancer is equally distributed among women who have heard about cervical cancer; and (H1c) - Fifty percent of the women surveyed that have heard about cervical cancer will have knowledge of the state assistance programs that provide cervical cancer screening services to qualified/low-income women.

Research Question 2

What is the distribution of the demographic characteristics and the level of knowledge for cervical cancer among women in low-income families in Clark County, NV? In order to find an association of the demographic characteristics and the level of knowledge for cervical cancer, the following hypotheses were investigated: (H2a) - Observed populations are equal to expected populations in their level of knowledge for cervical cancer in term of Race/Ethnicity; (H2b) - Observed populations are equal to expected populations in their level of knowledge for cervical cancer in terms of Education, and (H2c) - Age is positively correlated with the level of knowledge for cervical cancer among women in low-income families in Clark County, NV.

Measurements and Statistical Analyses

The main variable of interest was knowledge of cervical cancer among women in low-income families in Clark County, NV. Other variables measured were: the level of knowledge about the risk factors for cervical cancer among the target population, the source of information about cervical cancer among the target population, and the level of knowledge about available resources for cervical cancer among the target population.
This study utilized two statistical packages; SPSS 14.0 and MINITAB 14.0. The statistics calculated were: descriptive statistics, chi-square test and log-likelihood test by using cross tabulation, correlation analysis (Spearman’s Rho), and a normality test by using the Shapiro-Wilk test. Also, a Knowledge Index (K.I) was created for questions number 4a to 4b, and 4d to 5f stating that: If 4a = 1 (“Yes”), then

\[ K \cdot I. = \sum_{i=4}^{6} X_i + \sum_{i=4}^{5} X_i \]  

where \( X_i = \{0(“No”), \frac{1}{2}(“Not Sure”), \text{and} \ 1(“Yes”)\} \). Question 4c was eliminated from the knowledge index owing to the fact that someone might have heard about the HPV virus without necessarily knowing that it is associated with cervical cancer.

Study Participants and Sample size (n)

The sample population consisted of women 18 years and older, who are currently enrolled in the WIC program in Clark County, NV. Any data collected from women under the age of 18 was not analyzed. The population was accessed using the convenience sampling method. Convenience sampling was conducted at one WIC clinic location, and the rationale for selecting this method was that the WIC clinics serve women and children in low-income families, with the former being the target population. The standard sample size for this study was to collect a total of 50 completed surveys. A total of 52 surveys was collected, of which 50 of them were valid. The remaining 2 surveys were not used as the participants were under the age of 18. It should be noted that interviews were conducted only in English. Hence, results for the ethnic category “Hispanic” represent only English-speaking Hispanic women, and should not be construed as a representative sample of Hispanic women.
Study Site

The data collection process took place at the WIC Cambridge Clinic, one of the Nevada Health Centers, Inc., clinics. This site serves women from different ethnic backgrounds, namely Asian, African American, African Natives, Alaskan Natives, American Indians, Hispanics, Whites and Pacific Islanders. With such a diverse community, a representative sample of surveys was received, providing a mixture of different cultural backgrounds.

Selection Criteria and Study Process

Participants who could speak English were asked to volunteer to be a part of this study. Interviews were conducted until a sample size of 50 was reached. The researcher initiated the study by informing potential participants through the use of a prepared informed consent form (Appendix III). Participants had the option to choose to either continue with their participation by selecting the box that said “Yes” on the informed consent form, or to discontinue with their voluntary participation by selecting the box that said “No” on the informed consent form.

Once the consent form was administered, those women who agreed to participate in the study were given the survey instrument to complete, a pen, and a clipboard to use while filling out the survey. The time to complete the survey ranged from 5 to 10 minutes. After that, a brief overview of cervical cancer was provided to participants, with some basic facts about cervical cancer, its associated risk factors and the recommended screening guidelines for cervical cancer. The source of the information
provided was retrieved from the CDC website: http://www.cdc.gov/std/hpv/default.htm on July 08, 2006.

The researcher conducted all interviews in the WIC supervisors’ office. Since the study was conducted in a private office, women appeared to be relaxed and free to discuss their personal information about cervical cancer. Participation in this study was voluntary. Human subject protection and ethical guidelines were followed. The survey instrument did not ask for personal information that could be linked to the participants’ identity. At any point in the study process, participants were free to withdraw themselves from the study.

Survey Instrument

A two-page survey instrument consisting of 15 questions was created, with reference to the CDC guidelines for cervical cancer. Of the 15 questions, 14 of them were multiple choices and 1 was open ended (Appendix IV). The first set of questions were related to general demographics and comprised of questions such as: What is your age? How do you identify yourself (race/ethnicity)? and What is the highest grade or year of school that you completed? Close-ended responses were offered for each of the questions, except for the question about age which allowed for an open-ended response.

Following that, a set of knowledge-based questions were asked and those were: Have you ever heard about cervical cancer? Did you know that cervical cancer can be prevented? Have you ever heard about the Human Papilloma Virus? Do you know how HPV is related to cervical cancer? Did you know that – Long term smoking is linked to cervical cancer?, Early sexual onset is linked to cervical cancer?, A long term use of oral
contraceptives can lead to cervical cancer?, Not getting screened as recommended is a risk factor for cervical cancer?, Having multiple sex partners is associated with cervical cancer? and Having unprotected sex can lead to cervical cancer? The responses to these questions were categorical consisting of Yes=1, No=0, and Don’t Know/Not Sure=0.5.

A next set of questions asked about Pap smear screening knowledge such as:
Have you ever heard about a Pap smear screening test? If yes, do you know the purposes of a Pap smear test? Has your healthcare provider provided any information to you about the purposes of the Pap smear test? If yes, in which manner was the information provided to you? The responses to the first three questions were also categorical, consisting of: Yes=1, No=0, and Don’t know/Not Sure=0.5. The responses for the last question consisted of: Brochure=1, Video=2, Pamphlet=3, and Verbally=4.

One behavioral question, in relation to the screening guidelines was addressed as:
About how long has it been since you have had a Pap smear test done? The response to this question was, Within the past 1 year=1, Within the past 2 years=2, Within the past 3 years=3, Within the past 4 years=4, Within the past 5 years=5, and I have never had a Pap smear test before=6.

Resource based questions were also addressed, and those included: Where do you go to get your Pap smear screening test done? What kind of health insurance coverage do you have? Does your health insurance cover for a Pap smear screening test? If you do not have health insurance coverage, do you know where to go and get a free/low-cost Pap smear screening test done? Do you know that the state provides assistance for cervical cancer screening to qualified/low-income women? and What is the main source of

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information for your healthcare concerns? Close-ended responses were provided for these questions.
CHAPTER 4

RESULTS

Descriptive Statistics – Overview of Survey Responses

An open-ended question asked study participants to identify their age. Original data for age distribution was collected on a continuous variable. In order to provide a better understanding of the demographic characteristics, data for the age distribution were collapsed into four different groups: under 21, 21 to 30, 31 to 40, and 41 to 50 (Table 1). More than 80% of the study participants were among the under 21 and 21 - 30 age groups. Less than 10% of the respondents were between ages 31-40. The smallest group of study participants was that of 41 – 50.

Table 1: Age Distribution by Frequency and Percentage, for question 1: What is your age?

<table>
<thead>
<tr>
<th>Age Distribution</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 21</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>21 - 30</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>31 - 40</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>41 - 50</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Study participants were asked to identify their race/ethnicity. Original data for this question were collected on the following categories: Asian, White, Hispanic, Black/African American, Native Hawaiian/Pacific Islanders, American Indian/Alaskan Natives, and Others/Specify. In order to provide a better understanding of the demographics, data were collapsed into four main groups, which are: White, Hispanic, Black/African American, and All others (Table 2). The majority of the study participants came from the Hispanic population, while the least group of study participants came from a combination of all other races. A total of 76% of those interviewed were minority participants.

<table>
<thead>
<tr>
<th>Race / Ethnicity</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Hispanic</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Black/African American</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>All Others</td>
<td>9</td>
<td>18</td>
</tr>
</tbody>
</table>

Participants were asked to identify the highest grade or year of school completed. Original data on the level of education was collected in the following format: Did not graduate from high school, High school diploma or GED, Technical or Vocational school, Some college, Bachelor’s degree, and Graduate/Professional degree. In order to
provide a better understanding of the demographics, data were collapsed into the following groups: Less than High School, High School or GED, and Some College + (Table 3). Those with a HS or GED were the majority by 52%, while those with less than HS and Some college + were 24 percent each. Out of 50 women who participated in this study, only 1 of them has a college degree. All others who fell into the Some College + category had attended classes but had not received a college degree.

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; High School</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>HS or GED</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td>Some College +</td>
<td>12</td>
<td>24</td>
</tr>
</tbody>
</table>

Question 4 is comprised of four subsets (Table 4). More than 50% of the study participants have heard about cervical cancer. On the other hand, more than 50% of the study participants do not know that cervical cancer can be prevented, if detected at its earliest stages. Also, more than 50% of the study participants have not heard about the HPV virus, and even more disconcerting, more than 70% of the study participants do not know how the HPV virus is related to cervical cancer.
Table 4: Knowledge for cervical cancer. Responses were given as “Yes”, “No”, and “DK/NS” (Don’t Know/Not Sure), for question 4: To the best of your knowledge, please answer the following questions: 4a – 4d. Data is reported in Frequency (%).

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Yes</th>
<th>No</th>
<th>DK/NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a - Heard about cc?</td>
<td>29 (58%)</td>
<td>19 (38%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>4b - Can be prevented</td>
<td>18 (36%)</td>
<td>27 (54%)</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>4c - Heard about HPV?</td>
<td>18 (36%)</td>
<td>28 (56%)</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>4d - HPV with cc?</td>
<td>10 (20%)</td>
<td>37 (74%)</td>
<td>3 (6%)</td>
</tr>
</tbody>
</table>

Question 5 was addressed in order to explore participants’ understandings of the associated risk factors for cervical cancer (Table 5). More than 50% of study participants knew that long-term smoking is linked with cervical cancer. Early sexual onset and a long-term use of oral contraceptives were the least known risk factors. More than half of the study participants did not know that having multiple sex partners and having unprotected sex are risks factors for cervical cancer. Missing values have been eliminated from the analysis of this question.

Questions 4 and 5 were combined into a knowledge index. The mean of the knowledge index was 5.1 (SD=2.46). This value was used in hypothesis 1a (below).
Table 5: Risk Factors for Cervical Cancer: Responses were given as “Yes”, “No”, and “DK/NS” (Don’t Know/Not Sure) for question 5: Did you know that? Data is reported in Frequency (%).

<table>
<thead>
<tr>
<th>Risk Factors for Cervical Cancer</th>
<th>Yes</th>
<th>No</th>
<th>DK/NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5a - Long term Smoking?</td>
<td>26(52%)</td>
<td>20(40%)</td>
<td>4(8%)</td>
</tr>
<tr>
<td>5b - Early Sexual Onset?</td>
<td>14(28%)</td>
<td>32(64%)</td>
<td>4(8%)</td>
</tr>
<tr>
<td>5c - Oral Contraceptives?</td>
<td>11(22%)</td>
<td>35(70%)</td>
<td>4(8%)</td>
</tr>
<tr>
<td>5d - Recommended Screening?</td>
<td>25(50%)</td>
<td>21(42%)</td>
<td>4(8%)</td>
</tr>
<tr>
<td>5e - Multiple Sex Partners?</td>
<td>19(38%)</td>
<td>27(54%)</td>
<td>4(8%)</td>
</tr>
<tr>
<td>5f - Unprotected Sex?</td>
<td>18(36%)</td>
<td>28(56%)</td>
<td>4(8%)</td>
</tr>
</tbody>
</table>

Participants were asked to identify their source of information about the risk factors for cervical cancer (Table 6). Of those who responded, the majority of them have heard about cervical cancer from other sources such as: from school, by reading a book, from an abnormal pap test, and from co-workers. Eleven out of 50 study participants indicated this question not to be applicable. Thirty percent of the respondents indicated that they learned about the risk factors from their own physicians or media coverage. The categories of friend or nurse practitioners were the least sources of information about the risk factors for cervical cancer.
Table 6: Source of Information on Cervical Cancer by Frequency and Percentage, for question 6: How did you learn about the risk factors for cervical cancer?

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A friend</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>A family member</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>A physician</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>A nurse practitioner</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Media coverage</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Participants were asked if they have heard about a Pap smear screening test before, and over 90% of them indicated “yes”. Less than 10% of the study participants indicated “no” to having heard about a Pap smear screening test (Table 7a).

Table 7a: Heard About Pap Test Distribution by Frequency and Percentage, for question 7a: Have you ever heard about a Pap smear screening test?

<table>
<thead>
<tr>
<th>Heard About Pap Test?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>46</td>
<td>92</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Of those who responded to question 7b, the majority of them knew the purpose of a Pap smear screening test (Table 7b). On the other hand, 30% of the study participants indicated “no” or “don’t know/not sure” about the purposes of a Pap smear screening test.
Ten percent of the study participants did not either respond to this question or indicated this question not to be applicable to them.

Table 7b: Purposes of a Pap Test Distribution by Frequency and Percentage, for question 7b: If yes, do you know the purposes of a Pap smear screening test?

<table>
<thead>
<tr>
<th>Purposes of a Pap Test?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Missing</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

More than half of the study participants selected that they had received information about the purpose of a Pap smear test. On the other hand, 48% of the study participants indicated “no” or “don’t know” of receiving any information about the purposes of a Pap smear test (Table 8a).

Table 8a: Provider Information Distribution by Frequency and Percentage, for question 8a: Has your healthcare provider provided any information to you about the purposes of the Pap smear test and its significance to your health?

<table>
<thead>
<tr>
<th>Provider Information?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>
A close response rate exists between those who received information verbally, and those who indicated this question not to be applicable. The most common manner in which information was provided was through the means of verbal communication (Table 8b). A smaller percentage of the study participants indicated to have received information by means of a pamphlet or brochure. None of the study participants have received any information through the means of watching a video.

Table 8b: Manner of Information Distribution by Frequency and Percentage, for question 8b: If yes, in which manner was the information provided to you?

<table>
<thead>
<tr>
<th>Manner of Information?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brochure</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Video</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pamphlet</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Verbally</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>21</td>
<td>42</td>
</tr>
</tbody>
</table>

Question 9 was addressed in order to find out the length of time that has gone by since participants have had a Pap test done. Original data were collected on the following categories: within the past 1 year, within the past 2 years, within the past 3 years, within the past 4 years, within the past 5 years, and I have never had a Pap smear test before. Data was collapsed in the following categories: Less than 1 year, Greater than 1 year, and never had one. Of those who responded, the majority of the study participants have had a Pap smear test done within the past 1 year at 80%. While less
than 10% of the study participants have had a Pap test done more than a year ago, a little over 10 percent of them have never had one before (Table 9).

Table 9: How Long – Pap Test Distribution by Frequency and Percent, for question 9: About how long has it been since you have had a Pap smear test done?

<table>
<thead>
<tr>
<th>How Long - Pap Test?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Greater than 1 year</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Never had one</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

Participants were asked to indicate where they go to get their Pap test done. Of those who responded, more than half of them get their Pap smear screening test done at the Doctors office/HMO. Fewer women get their Pap test done from free clinics/health centers or from private physicians (Table 10). More that 10% of the study participants indicated this question not to be applicable to them.
Table 10: Where-Pap Test Distribution by Frequency and Percentage, for question 10: Where do you go to get your Pap smear screening test done?

<table>
<thead>
<tr>
<th>Where - Pap Test?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Clinic/Health Centers</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Doctors Office/HMO</td>
<td>29</td>
<td>58</td>
</tr>
<tr>
<td>Private Practice</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

Question 11 explored the type of health insurance coverage that study participants have. Of those who responded, the majority of them have Medicaid coverage, while 34% of them do not have any type of health insurance coverage. Fewer women have private health insurance, other government insurance programs and insurance through their spouses. Less than 4 percent indicated “don’t know” about the type of their health insurance coverage. There was no any missing value in response to this question.

Table 11: Type of Health Insurance Distribution by Frequency and Percentage, for question 11: What kind of Health Insurance Coverage do you have?

<table>
<thead>
<tr>
<th>Type of Health Insurance</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t Have Any</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>Private Insurance</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Medicaid</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Other Govt Insurance</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Through Spouse</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>
For those with insurance, participants were asked if their health insurance covers for a Pap smear screening test. Of those who responded, more than half of them reported to have health insurance coverage for their Pap smear screening test. On the other hand, 14% of the study participants responded “no” or “don’t know/not sure” to having coverage for their Pap smear test through their health insurance. For unknown reasons, 32% of the study participants indicated this question not to be applicable to them (Table 12).

<table>
<thead>
<tr>
<th>Coverage for a Pap Test?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>16</td>
<td>32</td>
</tr>
</tbody>
</table>

Those with no health insurance coverage were asked if they knew where to go to get a free/low-cost Pap smear screening test. Of those who responded, a little over 20% of them know where to go and get a free/low-cost Pap smear test. The majority of them either did not know where to go or were not sure of where to go and get a free/low-cost Pap smear screening test (Table 13). Nearly 40% of the study participants indicated this question not to be applicable.
Table 13: Where to go distribution by Frequency and Percentage, for question 13: If you do not have health insurance coverage, do you know where to go and get a free/low-cost Pap smear screening test?

<table>
<thead>
<tr>
<th>Where to go?</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>19</td>
<td>38</td>
</tr>
</tbody>
</table>

Participants were asked if they knew about the state assistance program for cervical cancer screening services. Of those who responded, more than 70% of women indicated “no” or “don’t know/not sure” of the fact that the state provides assistance for cervical cancer screening to qualified/low-income women. Fewer women (24%) knew about the state programs that provide assistance for cervical cancer screening to qualified/low-income women (Table 14).

Table 14: Knowledge of State Resources distributed by Frequency and Percentage, for question 14: Do you know that the state provides assistance for cervical cancer screening to qualified/low-income women?

<table>
<thead>
<tr>
<th>State Resources</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>No</td>
<td>32</td>
<td>64</td>
</tr>
<tr>
<td>Don’t Know/Not Sure</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

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Women were asked to identify the source of information for their healthcare concerns. Of those who responded, most women depend on their family members and doctors’ office as their main source of information for their healthcare concerns. Fewer women depend on free clinics/health centers, church/similar organizations, and friends as their main source of information for their healthcare concerns (Table 15).

Table 15: Healthcare Concerns Information distributed by Frequency and Percentage, for question 15: What is the main source of information for your healthcare concerns?

<table>
<thead>
<tr>
<th>Healthcare Concerns - Info</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Clinic/Health Center</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Family Members</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Doctors Office</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Church/Similar Organization</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Friends</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Research Question 1

What is the level of knowledge about cervical cancer among women in low-income families in Clark County, NV?

The result of this question is based on questions 4a, 4b and 4d. Question 4c has not been included since study participants may have heard about the HPV virus without necessarily knowing that it is related to cervical cancer. The conditional probability set forth is that, given that they have knowledge, what is their level of knowledge about cervical cancer? Results indicate that the level of knowledge for women who have heard
about cervical cancer is above 50%. However, less than 50% of them knew that cervical
cancer can be prevented. On the other hand, 80% of women did not know that the HPV
virus is related to cervical cancer. Those omitted in the analysis of this question were
36% of the entire sample size. Also, any missing values have been eliminated from the
analysis of this question.

Table 16: Knowledge of Cervical Cancer, Responses were given as “Yes”, “No”, and
“DK/NS” (Don’t Know/Not Sure), for question 4: To the best of your knowledge, please
answer the following questions: 4a, 4b, and 4d. Data is reported in Frequency (%).

<table>
<thead>
<tr>
<th>Knowledge of cc</th>
<th>Yes</th>
<th>No</th>
<th>DK/NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a - Heard about cc</td>
<td>29 (58%)</td>
<td>19 (38%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>4b - Can be prevented?</td>
<td>18 (36%)</td>
<td>27 (54%)</td>
<td>5 (10%)</td>
</tr>
<tr>
<td>4d - HPV with cc</td>
<td>10 (20%)</td>
<td>37 (74%)</td>
<td>3 (6%)</td>
</tr>
</tbody>
</table>

Hypothesis 1a

The women surveyed that have heard about cervical cancer will have knowledge of at
least 50% of the associated risk factors for cervical cancer.

Using a one-sample t-test, it was determined that the average knowledge of
subjects (Mean = 5.1, SD = 2.46) did not differ from that expected (E = 4.5, or 50% of
questions) (t = 1.2, p = 0.239, d.f = 28, n=29); hence, fail to reject H1a.
Hypothesis 1b

*The source of information about the associated risk factors for cervical cancer is equally distributed among women who have heard about cervical cancer.*

Using a log-likelihood test, it was determined that the source of information of subjects did not differ from that expected ($G^2=6.79$, $p = 0.236$, d.f. = 5, n=6); hence fail to reject $H_1b$.

Hypothesis 1c

*Fifty percent of the women surveyed that have heard about cervical cancer will have knowledge of the state assistance programs that provide cervical cancer screening services to qualified/low-income women.*

Using a chi-square test, it was determined that differences exists among women who have heard about cervical cancer and their level of knowledge of the available state resources ($\chi^2=8.76$, $p=0.013$, d.f. =2, n=29); hence reject $H_1c$. However, when examining those women who said "Yes" or "No" to the question, there were no statistical differences ($\chi^2=1.34$, $p=0.239$, d.f. =1, n=26).

Research Question 2

*What is the distribution of demographic characteristics and the level of knowledge for cervical cancer among women in low-income families in Clark County, NV?*

In terms of Race/Ethnicity, for those who responded to question 4a, the number of responses that were observed did not significantly differ from those who were expected ($\chi^2 = 1.19$, $p = 0.756$). However, we can observe some interesting trends in the data.
There is not much difference that exists between Whites versus Hispanic (34% versus 32%) and Blacks/African American versus All others, (21% versus 13%). On the other hand, among those who said no, 90% of them were minorities (Table 17).

Missing values were not included in the analysis of this question. Original data for race/ethnicity was collected in the following categories: Asian, White, Hispanic, Black/African American, Native Hawaiian/Pacific Islanders, American Indian/Alaskan Natives, and Other/Specify. Due to the fact that there was less numbers of Asian, Native Hawaiian/Pacific Islanders, American Indian/Alaskan Native, data was collapsed into four categories found in Table 17.

Table 17: Race/Ethnicity distribution with those who said, “Yes” to 4a and those who said “No” and ‘DK/NS” (Don’t Know/Not Sure) to 4a: [No., (%), Expected]

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Yes to 4a</th>
<th>No and DK/NS to 4a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Whites</td>
<td>10</td>
<td>34</td>
</tr>
<tr>
<td>Hispanic</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>Black/AA</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>All Others</td>
<td>4</td>
<td>13</td>
</tr>
</tbody>
</table>

In terms of education, the majority of those who said “yes” to question 4a were either high school graduates or college attendees, representing more than 80% of the interviewed population. On the other hand, the majority of those who said “no” or “don’t know/not sure” to question 4a were those with less than HS or HS/GED (Table 18).
Table 18: Education distribution and those who said, “Yes” to 4a (%), and those who said “No” and ‘DK/NS” (Don’t Know/Not Sure) to 4a (%).

<table>
<thead>
<tr>
<th>Education Distribution</th>
<th>Yes to 4a (%)</th>
<th>No and DK/NS to 4a (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than HS</td>
<td>17</td>
<td>38</td>
</tr>
<tr>
<td>HS or GED</td>
<td>55</td>
<td>42</td>
</tr>
<tr>
<td>College +</td>
<td>28</td>
<td>20</td>
</tr>
</tbody>
</table>

Hypothesis 2a

*Observed populations are equal to expected populations in their level of knowledge for cervical cancer in terms of Race/Ethnicity.*

The analysis of this hypothesis was based on the total count of all 50 women. With reference to question 4a. - There is no significance differences between race/ethnicity and the level of knowledge about cervical cancer (refer to Table 17 above). The likelihood ratio is \(G^2 = 1.19, p = 0.756\), and therefore, we fail to reject the null hypothesis. Missing values have been eliminated from the analysis of this question.

Hypothesis 2b

*Observed populations are equal to expected populations in their level of knowledge for cervical cancer in terms of Education.*

The analysis for this hypothesis is based on the total count of all 50 women. With reference to question 4a. - There is no significance differences between education and the level of knowledge about cervical cancer (Table 19). The likelihood ratio is \(G^2 = 9.9, p = 0.351\) and therefore, we fail to reject the null hypothesis. Missing values have been
eliminated from the analysis of this question. Original responses have been collapsed into four categories (Table 19).

Table 19: Level of education completed (question 3) and have you ever heard about cervical cancer (question 4a) cross tabulation, responses were “Yes”, “No”, “DK/NS” (Don’t Know/Not Sure), Observed (Expected) values.

<table>
<thead>
<tr>
<th>Level of Education Completed</th>
<th>Yes</th>
<th>No</th>
<th>DK/NS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than High School</td>
<td>4 (7)</td>
<td>8 (4.6)</td>
<td>0 (0.2)</td>
<td>12</td>
</tr>
<tr>
<td>High School or GED</td>
<td>17 (15.1)</td>
<td>8 (9.9)</td>
<td>1 (0.5)</td>
<td>26</td>
</tr>
<tr>
<td>Some College</td>
<td>7 (6.4)</td>
<td>3 (4.2)</td>
<td>0 (0.2)</td>
<td>11</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>1 (0.6)</td>
<td>0 (0.4)</td>
<td>0 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>19</td>
<td>1</td>
<td>50</td>
</tr>
</tbody>
</table>

Hypothesis 2c

Age is positively correlated with the level of knowledge for cervical cancer among women in low-income families in Clark County, NV.

The mean age of all study participants was 25.3 (SD=6.44). This implies that most women interviewed were in their mid twenties. A normality test on the age distribution indicated that age was not normally distributed (Shapiro-Wilk = 0.888, p < 0.001). In addition, a normality test on the knowledge index results indicated that the level of knowledge for cervical cancer was not normally distributed (Shapiro-Wilk = 0.912, p = 0.020). Therefore, a 2-tailed nonparametric correlation test between age and the knowledge index was computed and the results indicate that there is no correlation between age and the level of knowledge (Spearman’s rho = - 0.072, p = 0.710).
Additional findings

*What is the relationship between where women go to get their Pap smear screening test done and the kind of health insurance coverage that they have?*

Table 20: Where do you go to get your Pap smear screening test (question 10) and what type of health insurance coverage do you have (question 11).

<table>
<thead>
<tr>
<th>Variables</th>
<th>None</th>
<th>Private</th>
<th>Medicare</th>
<th>Medicaid</th>
<th>State Plan</th>
<th>Govt/Other</th>
<th>Spouse</th>
<th>DK/NS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Clinic</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Doctors Office</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>Private Practice</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17</td>
<td>5</td>
<td>2</td>
<td>19</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>50</td>
</tr>
</tbody>
</table>

Of those who responded, Medicaid covers the majority of women who go to the Doctors office for their Pap smear screening test. Those with no health insurance coverage rely on free clinics or doctor’s office for their Pap smear screening test (Table 20). Fewer women who are covered by Medicaid indicated that they go to private practices or free clinics for their Pap test.
CHAPTER 5

DISCUSSION

The results of the age distribution indicate that a large number of women interviewed were between ages 18 to 30. These findings support the expectations that the majority of the study participants would come from the following two groups: under 21, and 21 to 30 years olds. The need to intervene in these groups is important in the process of educating young women about cervical cancer. On the other hand, the literature suggests that many older women tend to think that diseases are not present if there are no signs or symptoms (Redmond et al., 1997). Therefore, the need to reach out women of all ages remains to be a crucial intervention. Younger women tend to perceive preventive measures to be less serious and older women tend to think that if there are no signs or symptoms, then everything is okay.

As expected, a large number of minorities were interviewed and this implies that the percentage of minorities seeking nutritional care for their families is large. Minority populations are often low-income, facing high unemployment rates, and lack of access to health care services (Rudolph et al., 1993). As a result, women from racial and ethnic minorities in the US have cervical cancer at later stages compared to Whites (Nelson, 2002). Cervical cancer education ought to be distributed evenly among women, with a special attention to those who are highly at risk, or come from disadvantage groups, such as low-income families.
Since education plays a major role in one's life, it was expected that the more education one has, the more knowledge they have about cervical cancer, its associated risk factors, and its preventive measures. The majority of women interviewed were either a high school dropout or one with a high school diploma. Very few women indicated to have some college education, of which most of them did not graduate. The need to find strategies and reach those who are not in school is important for the purposes of educating low-income women about the health implications of cervical cancer.

It was interesting to see that 40% of study participants had never heard about cervical cancer. This finding highlights the importance of educating women about cervical cancer. Also, 60% of women have never heard about the HPV virus, and 80% of them do not know its relationship to cervical cancer. In the goal of increasing awareness, it will be important to link the two together so that women will understand the connection of cervical cancer and the HPV virus while receiving their regular Pap test.

Overall, most women lack a complete understanding of the associated risk factors for cervical cancer. Even though half of the study participants knew about the side effects of long-term smoking and the risk factors associated with not getting screened as recommended, many of them seemed to be unaware of other risk factors. Health promotion and intervention methods need to focus on the link between the known risk factors and cervical cancer. Once women are exposed to the knowledge of the risk factors, more preventive measures can be applied in order to reduce the risk of developing cervical cancer.

It is encouraging to see that physician providers and media coverage have an impact in raising awareness of cervical cancer. Even though a high number of study
participants indicated that they learned about cervical cancer from family members, it is not clear if the information that is received through families is accurate. It was expected that most participants would have indicated that they learned about the risk factors for cervical cancer from their nurse practitioners but apparently that was not the case. Nurse practitioners will need to take a different approach and find better means of improving communication, and hence expanding the level of knowledge for cervical cancer.

It was encouraging to learn that the majority of women have heard about a Pap smear screening test since this test can detect the presence of any abnormal cells that can cause cervical cancer. On the other hand, since 30% of the study participants do not know the purposes of a Pap test, it implies that women lack a proper understanding of why a Pap test is important. A Pap test is the only test that can detect the HPV virus, a virus known to be highly associated with cervical cancer. The need to educate women of the importance of a Pap test, and its significance to their health, is an important tool in the quest to increase knowledge and awareness of cervical cancer.

Findings suggest that there is lack of information about the purposes of a Pap smear screening test. Even though 60% of study participants indicated “yes” to knowing the purposes of a Pap test, many of them did not know its connection with the HPV virus, and its contribution to detecting cervical cancer. These findings highlights on the importance of educating women as to why they are getting Pap test done.

Overall, not all healthcare providers do a good job of providing information about the purposes of a Pap smear test to their patients. Since nearly half of the study participants indicated not to have received information from their providers, the need to find better ways of improving communication needs to be implemented. It is surprising
to learn that none of the study participants reported to have learned through the means of video communication. In order to reach those populations that have yet to receive adequate information about the use of a Pap test, extensive use of brochures and pamphlets ought to be utilized in order to spread out information about cervical cancer, and the importance of a Pap smear screening test.

For the most part, a large number of women interviewed had a Pap test done within the past 1 year. These findings are very encouraging when it comes to cervical cancer screening. On the other hand, this question was almost irrelevant to address among this group of women as pregnant women or recent mothers are required to have a Pap test done by their healthcare providers. The rewording of question number 9 would probably have provided different results, and hence different interpretations. The limitation of this question is further discussed in the last chapter.

Question number 10 was addressed to investigate where participants go for their Pap smear screening test. The author's expectation of seeing more women going to free clinics/community health centers was not met; instead, more visits to a physician's office was identified, and this could be highly associated with Medicaid coverage or other State assistance programs for cervical cancer screening. Most physicians' offices are encouraged to provide free cervical cancer screening services and later on receive reimbursements from the state (NBCCEDP, CDC 2006).

Participants were asked to identify the type of their health insurance coverage. The results indicate that Medicaid covers most women while other government sponsored insurance program covers a few. One positive finding is that of having more women receiving Medicaid coverage. The Breast and Cervical Cancer Prevention and
Treatment Act of 2000 is a Public Law that gives the state the option to provide medical assistance through Medicaid to eligible women who are screened through the CDC Breast and Cervical Cancer Early Detection Program (USDHH, 2006). It is important to educate all women about existing resources, because the NBCCEDP provides free breast and cervical cancer screening services, and follow up diagnostic services to women in need, such as the uninsured or those with low incomes; it should be noted, however, that women must be between the ages of 40 – 64 to qualify for this program.

When women were asked if their health insurance provided coverage for a Pap smear screening test, those who are not insured (34%) indicated this question not to be applicable. Therefore, it is imperative for healthcare professionals to inform the uninsured women about the existing state resources for cervical cancer screening. On the other hand, it was expected that the women who indicated to have Pap smear coverage through their insurance are those covered by Medicaid. Hence, Medicaid coverage remains to be a great resource to most women in low incomes families.

Study participants were asked if they knew where to go and get a free/low-cost Pap smear screening test. This question was only relevant for those women who do not have health insurance coverage. Since very few women know of available resources, the need to provide information about available state resources remains to be a crucial consideration. Even though a number of women who utilize screening services continue to increase year after year, the majority of women are not aware of the existing screening services.

Participants were asked if they knew about the availability of the state programs that provide free/low-cost cervical cancer screening to qualified/low-income women.
Unfortunately, not many women are aware of the existing resources for cervical cancer screening. More outreach strategies need to be implemented in order to inform women of the free/low-cost cervical cancer screening services. For certain, it does not do the state programs any good to provide services to persons who are not aware of their existence.

Women were asked to identify the source of information for their healthcare concerns. Many women depended on either family members or doctors offices as their main sources of information for their healthcare concerns. More work needs to be done in order to ensure that free clinics/health centers are also dependable when it comes to providing information to women and their families. Also, a large number of women and their families can be reached while at a church or within similar places. Therefore, the need to distribute the information from different channels of communication is necessary for the success of many healthcare issues.

With reference to research question 1, not every study participant is aware of cervical cancer and its relationship with the HPV virus. The need to extend knowledge to all women, especially those who are at high risk remains to be a crucial consideration. Extensive elaborations on the role of the HPV virus need to be well communicated so that women can understand the importance of cervical cancer screening. Findings of Hypothesis 1a imply that there was not much difference about knowledge of the risk factors among those who have heard about it and those who have not heard about it. It was expected that those who have heard about cervical cancer would know at least half of the associated risk factors for cervical cancer; but unfortunately, those expectations were not met.
The results for Hypothesis 1b imply that the distribution of sources of information from friends, family members, physician, nurse practitioners, media coverage and others were uniformly distributed. The number of women who received information from friends was less than expected. On the other hand, the number of women who received information from physicians and other sources were higher than expected, though neither of them reached the statistical level of significance.

The expectations set forth for Hypothesis 1c were not met since less than 50% of the women surveyed that have heard about cervical cancer know of the available resources. Hence, this study has found lack of enough knowledge about the available state resources. It remains of critical importance to provide this information to all women regardless of their knowledge of cervical cancer.

Findings from research question 2 become interesting because some of the study participants have not heard about cervical cancer before. This is probably owed to lack of “ribbon campaigns” for cancer of the uterine cervix (Cohen, 1996). In terms of race/ethnicity, minority women have indicated to know less about cervical cancer as compared to Whites. This is proven by a study completed by Cohen (1996), which discovered that “women with cervical cancer are often from low income, native or immigrant communities, while breast cancer is more likely to strike the upper-income, well-educated women” (p. 1868). Although the total number of Hispanic women is large, more than half of them indicated that they had not heard about cervical cancer. The least educated women happen to be the majority of those who said no to having heard about cervical cancer. Also, there is a possibility that minority populations are not getting all the necessary information that they need to have about cervical cancer.
With reference to Hypothesis 2a, a major finding from the statistical test that draws some attention is that of the number of White women who said “no” to having heard about cervical cancer. The observed count was 10 while the expected count was 7. Other factors such as education, being low-income, uninsured or underinsured might have contributed to their lack of knowledge of cervical cancer. Findings from Hypothesis 2b that draws special attention is that of the relationship between less than high school graduates and that of having heard about cervical cancer. Those who said yes were less (4) than those expected (7). Within the same category, those who said no were more (8) than those expected (4.6). It is important to note that the majority of participants have High School or GED education. Finding from Hypothesis 2c simply mean that there was no correlation between age and the level of knowledge. This implies that it is possible that women continued to receive care/Pap test without being well informed. Often, negative laboratory results are not accompanied by a phone call and hence women who have not received positive results have not been able to learn more about Pap test.

Additional findings in regards to where women go for their Pap test and what type of health insurance coverage that they have imply that women who are covered by Medicaid go to the doctor’s office than anywhere else. More awareness of the free/low-cost cervical cancer screening services through Medicaid needs to be expanded to all women especially those with no health insurance coverage. The need to target and distribute that information at the doctor’s offices will hopefully be a success in increasing awareness of the screening services.
CHAPTER 6

CONCLUSION

This research study has discussed the need to expand knowledge and increase awareness of cervical cancer among women in low-income families in Clark County, NV. Clark County remains one of the fastest growing regions in Nevada, with an average annual growth rate of 3.5% (US Census 2005). The goal of this study was to assess the level of knowledge and awareness of cervical cancer among the target population. Awareness campaigns are a crucial part of achieving this goal. If more outreach can be implemented in the fight against cervical cancer, knowledge and awareness will dramatically increase since the same strategies have worked well for other chronic illnesses. The need to connect each field is a crucial goal of this study.

Strategies such as the “pink ribbon” campaign for breast cancer, television and radio advertisements, and the selling of merchandise with a “pink ribbon” have played a major role in raising awareness of breast cancer. The same strategies could be applied and hence increase knowledge and raise awareness about cervical cancer. More beyond a single TV add ought to be done at the state level in order to educate women about cervical cancer, its preventive measures, its associated risk factors, and its association with the HPV virus. The US Department of Health and Human Services has identified ethnic disparities in cervical cancer to be a priority area since the disease is entirely preventable if screened at recommended intervals (Nelson, 2002).
This study interviewed a total of 52 women, of which 50 of them were a valid sample. It is interesting to see that only 29 of them have heard about cervical cancer prior to the interview, and the remaining 21 of them were uninformed about the disease. Also, among the 29 women who have heard about cervical cancer, very few of them knew that the disease can be prevented. A large number of women reached did not know the association of cervical cancer and the HPV virus. The risk factors for cervical cancer are not well understood among women, and therefore education needs to be a priority.

Lack of knowledge about the state free/low-cost cervical cancer screening services seems to be a major issue. It is everyone’s responsibility to educate the public about the available resources for cervical cancer. Low-income, uninsured and underinsured women between 40 to 64 years old are qualified for the Women Health Connection program, which provides free breast and cervical cancer screening services (CDC, 2006). For women under the age of 40, a low cost Pap test of $20 is available at Clark County, through the Southern Nevada Health District clinics (SNHD) located in different parts of the valley. These clinics are available in order to increase participation of women who are not able to afford paying for cervical cancer screening services.

Even though incidence rates and death rates for cervical cancer continue to decrease in the United States, the need to eliminate the disease remains to be very important. The battle to reduce death rate from cancer of the uterine cervix as specified in Health People 2010: Objective Number 03-04 remains to be a target, at 2.0 deaths per 100,000. The decline in cervical cancer mortality rates in the 1970’s through the 1990’s is thought to be due to primarily the widespread use of Pap test for early detection of
cervical cancer (NCC, 2005). Therefore, it is through knowledge of cervical cancer that we can reduce mortality rates of invasive cancer.

Existing research has concluded that factors that highly contribute to lack of knowledge, and hence low participation in cervical cancer screening include poor awareness of the Pap smear test, lack of knowledge for risk factors of cervical cancer, fear of embarrassment, pain and discomfort, lack of female screeners, a poor understanding of cervical cancer screening procedures, and a need for additional information on cervical cancer (Fylan, 1998). Information on cervical cancer is an important aspect of achieving the goal of this study. Current research in this field is highly encouraged in order to explore other areas that contribute to lack of knowledge for cervical cancer.

Readers of this study are encouraged to think outside the box, and understand why women in low-income families lack enough knowledge when it comes to cervical cancer, its associated risk factors, and the available state resources. In order to reach women in low-income families, one needs to take a public health approach, which is: prevent the incidence rates of cervical cancer now, before it gets worse. I argue the readers of this document to look at the broader picture, and not just one variable. I encourage an understanding of the demographic characteristics, the distribution of health insurance coverage, and the personal behaviors when it comes to cervical cancer screening. The element of culture needs to be considered in future studies as less numbers of minority population are taking advantages of early detection through the use of a Pap smear screening test (Nelson, 2002).
Recommendations

This research study provides evidence for the need to increase knowledge and awareness of cervical cancer among women in low-income families in Clark County, NV. In order to achieve this goal, this study has utilized a framework of cancer prevention in Nevada that was established by the State of Nevada Comprehensive Cancer Plan in 2005, Nevada Cancer Council (NCC 2005). Additional recommendations beyond the NCC framework have also been included. The Nevada Cancer Plan has identified broad goals to reduce the burden of malignant neoplasm of all types. The NCC framework will give a better approach and emphasis on how to raise awareness and increase knowledge of cervical cancer in Clark County, NV.

Two critical questions that the author identifies in assessing the level of knowledge and awareness of cervical cancer are: where do we go from here and how can we help to make a difference in the community? With these questions in mind, almost everyone in the society is highly encouraged to be a part of cervical cancer prevention by increasing awareness of the disease while mentoring and supporting those who are most disadvantaged.

Many types of cancer can be controlled by individual personal behaviors such as smoking, physical inactivity, and poor dietary choices, and much of their applications are related to cervical cancer, with the addition of early detection through recommended screening. Raising awareness of the associated risk factors, improving personal behaviors, and motivating others to improve their personal lives will be a resolution to increasing awareness. More research is needed in this field specifically with regards to
knowledge of the HPV virus, the purposes of a Pap smear test, and knowledge of the available states’ resources.

1. The first recommendation that almost everyone can be a part of is that of sharing their knowledge and information about cervical cancer, its associated risk factors, and its available state resources. For anyone who is aware of these services, the need to share that information with others in the community is very crucial, especially among those who are uninsured, underinsured, low-incomes, and groups of ethnic minorities. There are many qualified women who are not aware of the states’ screening services. It is my speculation that once more women are aware of the free/low-cost cervical cancer screening services, more screening participation will be achieved and hence increase knowledge and awareness of cervical cancer.

2. Hospitals, clinics, community health centers, physicians-providers, nurse practitioners, and social workers could collaborate and sponsor community screening and education programs (NCC, 2005). By providing education on cervical cancer, its associated risk factors, and its preventive measures, more knowledge about the disease will be shared among women and other members of the society. By encouraging women to get cervical cancer screening tests done on time, more cervical cancer information will be shared in the communities and perhaps reduce the burden of the disease. Also, physician-providers, nurse practitioners and other healthcare professionals could promote cervical cancer screening to all women during regular hospital visits, even for visits that are not intended for Pap smear screening tests.
3. Community-based organizations, non-profits and faith-based organizations could promote cervical cancer awareness information to constituents (NCC, 2005). Also, public health departments could provide cervical cancer data to its residents. By doing so residents in the communities will understand the importance of taking personal responsibility of their individual behaviors that could possibly have an impact to their lives. Public health departments need to work closely with physicians and other health care providers in order to promote and provide cervical cancer screening programs (NCC, 2005). By doing so, access to care for those who are in need of the services will be assured.

4. The WIC clinics can contribute by collecting cervical cancer brochures and pamphlets that have been produced by recognized healthcare institutions, and distribute that information to women who are enrolled in the program. There is much ready-made information about cervical cancer, the HPV virus, and a Pap smear tests that can be utilized in our communities. The sharing of information to women in low-income families while receiving their WIC benefits will contribute to the efforts of increasing knowledge and raising awareness of cervical cancer in the region.

5. Clark County can promote cervical cancer awareness through the use of its local media, such as Television and Radio channels. By collaborating with local Cancer Institutes, more information about cervical cancer, its associated risk factors, and the role of the HPV virus may contribute to increasing awareness of the disease. By broadcasting at least one ad every week, more women will be reached, and hence seek available resources to cervical cancer prevention.
programs. As long as the right information reaches the audience, more knowledge of cervical cancer will be shared.

Strengths of the Study

1. A major strength of this study is that of gaining access to the WIC clinic and interviewing study participants in the WIC supervisors' office. The researcher received great cooperation from NVHC, Inc. M.D., the Director of the clinic, the Supervisor of the clinic, and the staff members from the assigned clinic. The WIC supervisor and staff members identified all participants who could communicate in English language, and referred them to the researcher. As a result of the NVHC cooperation, study participants appeared to be well relaxed during the interview process. The private manner in which the interviews were conducted might have contributed to their great participation rate.

2. Also, the short length of the questionnaire seemed to have motivated many of the study participants while answering the questions. When participants were informed about the expected length of the interviews, most of them seemed to be delighted at the fact that completing the questionnaire was going to last anywhere from 5 to 10 minutes. The total number of questions was 15, of which 14 of them were categorical, giving participants an opportunity to respond at a faster pace.
Limitations of the Study

No single study is considered to be perfect, and therefore, several limitations can be drawn from this study.

1. The group of women interviewed is that of either pregnant women or mothers of children under the age of 5. In most clinics, pregnant women are required to have a Pap smear test done during pregnancy or a few months after a child is born. Therefore, in this study 88% of the study participants had a Pap smear test done within the past 2 years. The understanding of a Pap test and how it is related to cervical cancer may have been different if a different group of low-income women was interviewed.

2. Study participants were drawn from one clinic location in Clark County, NV. This is a limitation because if the researcher would have the capability and resources to interview women from different clinics in Clark County, a more diverse population would have been reached, something that could possibly have produced different results. Clark County contains major metropolitan areas of Las Vegas, Henderson, North Las Vegas, Boulder City, and Mesquite (US Census 2006). Therefore, the results of these findings may not be a perfect representative sample of the entire region.

3. The sample size of this study consisted of only 50 study participants. If more time and resources were allocated, a much larger sample size of women would have been better. The larger the sample sizes the more representative of the population in the defined region.
4. Another limitation of this study is that of being conducted in English language only. As the researcher does not speak Spanish, this study was only done in English language, and hence discriminated against those participants who could not communicate in English. There is no doubt that different perceptions of cervical cancer knowledge and awareness would have been drawn if interviews were conducted in English and Spanish languages. However, one keynote from the findings is that 36% of the all respondents were Hispanic. Spanish language is the second from English language, not only in Clark County, but also in the rest of the United States.

5. Lack of more open-ended questions may have hindered more detailed results since the types of categorical questions asked on the questionnaire required study participants to choose from a list of given multiple choices. Fourteen out of 15 questions were categorical, with the exception of the first question, which was open-ended, allowing participants to identify their age. Owing to lack of an open comment question, there was no opportunity for study participants to elaborate their understanding of cervical cancer. The presence of more open-ended questions might have improved the results of the study and possibly add more variety as to what areas of improvement needs to be targeted. Therefore, the limited options that study participants had from the formatting of the questions might have hindered the flexibility to expand their opinions.

6. Study participants may have decided to participate in this study simply because they might have been fearful of loosing their WIC benefits, and hence the term "voluntary participation" may actually not have been practical. Even though the
researcher disclosed the information about this study by using an informed consent form at the beginning of each interview and elaborated on how the study was independent from their WIC benefits, there is a possibility that some participants may have been worried of losing their WIC benefits if they chose not to volunteer, and hence decided to offer their participation.
REFERENCES


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### APPENDICES

### APPENDIX I

**WIC INCOME GUIDELINES**

**Nevada State Health Division**

**WIC Program**

**Income Guidelines For Eligibility**

*07/1/2006*

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Gross Annual</th>
<th>Gross Monthly</th>
<th>Gross Weekly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$18,130.00</td>
<td>$1,511.00</td>
<td>$349.00</td>
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<td>2</td>
<td>$24,420.00</td>
<td>$2,035.00</td>
<td>$470.00</td>
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<td>3</td>
<td>$30,710.00</td>
<td>$2,560.00</td>
<td>$591.00</td>
</tr>
<tr>
<td>4</td>
<td>$37,000.00</td>
<td>$3,084.00</td>
<td>$712.00</td>
</tr>
<tr>
<td>5</td>
<td>$43,290.00</td>
<td>$3,608.00</td>
<td>$833.00</td>
</tr>
<tr>
<td>6</td>
<td>$49,580.00</td>
<td>$4,132.00</td>
<td>$954.00</td>
</tr>
<tr>
<td>7</td>
<td>$55,870.00</td>
<td>$4,656.00</td>
<td>$1,075.00</td>
</tr>
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<td>8</td>
<td>$62,160.00</td>
<td>$5,180.00</td>
<td>$1,196.00</td>
</tr>
</tbody>
</table>

For Each Additional Family Member Add:

| Family Member Add: | $6,920.00 | $525.00 | $121.00 |


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Health People 2010: Objective Number 3-4.
Reduce the death rate from cancer of the uterine cervix.

Target: 2.0 deaths per 100,000 females.

Baseline: 3.0 cervical cancer deaths per 100,000 females occurred in 1998 (age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

<table>
<thead>
<tr>
<th>Females, 1998</th>
<th>Cervical Cancer Deaths Rate per 100,000</th>
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</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>3</td>
</tr>
<tr>
<td>Race and ethnicity</td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>2.5</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>3.3</td>
</tr>
<tr>
<td>Asian</td>
<td>DNC</td>
</tr>
<tr>
<td>Native Hawaiian and other Pacific Islander</td>
<td>DNC</td>
</tr>
<tr>
<td>Black or African American</td>
<td>6</td>
</tr>
<tr>
<td>White</td>
<td>2.7</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>3.3</td>
</tr>
<tr>
<td>Not Hispanic or Latino</td>
<td>3</td>
</tr>
<tr>
<td>Black or African American</td>
<td>6.2</td>
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<tr>
<td>White</td>
<td>2.6</td>
</tr>
<tr>
<td>Education level (aged 25 to 64 years)</td>
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</tr>
<tr>
<td>Less than high school</td>
<td>7.2</td>
</tr>
<tr>
<td>High school graduate</td>
<td>4.8</td>
</tr>
<tr>
<td>At least some college</td>
<td>2.1</td>
</tr>
</tbody>
</table>
APPENDIX III

University of Nevada, Las Vegas

INFORMED CONSENT
Department of – UNLV School of Public Health
Cervical Cancer Survey Agreement

TITLE OF STUDY: Saving Lives: Assessing Knowledge and Awareness of Among Women in Low Income Families in Clark County, NV.

PRINCIPAL INVESTIGATOR: Michelle Chino, PhD.
STUDENT INVESTIGATOR: Salome Kapella, MPA.
CONTACT PHONE NUMBER: Michelle Chino – 895 2649.
Salome Kapella - 895 1040.

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to raise awareness of cervical cancer by looking at participants’ source of information, knowledge, and behavior on cervical cancer.

Participants
You are being asked to participate in the study because you are a woman currently participating in the WIC program, living in Clark County, Nevada.

Procedures
If you volunteer to participate in this study, you will be asked to do the following: You will be asked to complete a short questionnaire on your knowledge of pap smears, cervical cancer, and the Human Papilloma virus (HPV). The questionnaire will take about 10 minutes of your time. No personal information that can identify who you are will be asked.

Benefits of Participation
There may be no direct benefits to you as a participant in this study. However, we hope to learn your knowledge about cervical cancer, your knowledge about the associated risk factors of cervical cancer, your knowledge about the HPV virus, and your practice on cervical cancer screening.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks such as: You may become uncomfortable when answering some questions or you may be concerned that someone else may know what you answered. We will not include your name or collect any information that can identify you individually.
Cost /Compensation
There will not be financial cost to you to participate in this study. The study will take 10 minutes of your time. You will not be compensated for your time. The University of Nevada, Las Vegas may not provide compensation or free medical care for an unanticipated injury sustained as a result of participating in this research study.

Contact Information
If you have any questions/concerns about this study, you may contact the Principal Investigator - Dr. Michelle Chino, PhD at 702-895-1040, at UNLV. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office for the Protection of Research Subjects at 702-895-2794.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with the university. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for at least 3 years after completion of the study. After the storage time, the information gathered will be shredded.

Participant Consent:
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

☐ Yes  ☐ No
APPENDIX IV

SURVEY INSTRUMENT

1. What is your age? ____________ (# of years)

2. How do you identify yourself?
   - Asian
   - White
   - Black/African American
   - American Indian/Alaskan Native
   - Hispanic
   - Native Hawaiian/Pacific Islander
   - Other - Specify ________________

3. What is the highest grade or year of school completed?
   - Did not graduate from high school
   - High school diploma/GED
   - Technical/Vocational School
   - Some College
   - Bachelor’s degree
   - Graduate/Professional degree

4. To the best of your knowledge, please answer the following questions:
   - a. Have you ever heard about cervical cancer? 
     - Yes
     - No
     - Don’t Know/Not sure
   - b. Did you know that cervical cancer can be prevented? 
     - Yes
     - No
     - Don’t Know/Not sure
   - c. Have you ever heard about the Human Papilloma Virus (HPV)? 
     - Yes
     - No
     - Don’t Know/Not sure
   - d. Do you know how HPV is related to cervical cancer? 
     - Yes
     - No
     - Don’t Know/Not sure

5. Did you know that:
   - a. Long term smoking is linked to c. cancer? 
     - Yes
     - No
     - Don’t Know/Not sure
   - b. Early sexual onset can lead to c. cancer? 
     - Yes
     - No
     - Don’t Know/Not sure
   - c. A long term use of oral contraceptives can lead to c. cancer? 
     - Yes
     - No
     - Don’t Know/Not sure
   - d. Not getting screened as recommended is a risk factor for c. cancer? 
     - Yes
     - No
     - Don’t Know/Not sure
   - e. Having multiple sex partners is associated to c. cancer? 
     - Yes
     - No
     - Don’t Know/Not sure
   - f. Having unprotected sex can lead to c. cancer? 
     - Yes
     - No
     - Don’t Know/Not sure

6. How did you learn about the risk factors for cervical cancer – through:
   - A friend
   - A family member
   - A physician
   - A nurse practitioner
   - Media coverage
   - Other - ________________

7. Have you ever heard about a Pap smear screening test?
   - Yes
   - No
   - Don’t Know/Not sure
   - If yes, do you know the purposes of Pap smear screening test?
     - Yes
     - No
     - Don’t Know/Not sure
8. Has your healthcare provider provided any information to you about the purposes of the Pap smear test and its significance to your health? □ Yes □ No □ Don’t Know/Not Sure

If yes, in which manner was the information provided to you?
□ Brochure □ Video □ Pamphlet □ Verbally

9. About how long has it been since you have had a Pap smear test done?
□ Within the past 1 year □ Within the past 2 years
□ Within the past 3 years □ Within the past 4 years
□ Within the past 5 years □ I have never had a Pap smear test before (skip to #11).

10. Where do you go to get your Pap smear screening test done?
□ Free clinic or health center □ Doctor’s office or HMO
□ Private practice □ Don’t Know/Not Sure
□ Other ____________________________

11. What kind of Health Insurance coverage do you have?
□ Do not have any health insurance (Skip to #13)
□ Private health insurance □ Military Health Care
□ Medicare □ Medi-Gap
□ Medicaid □ Indian Health Services
□ State-Sponsored health plan □ Other Government Programs
□ Through my spouse □ Don’t Know/Not Sure

12. Does your health insurance cover for a Pap smear screening test?
□ Yes □ No □ Don’t know/Not Sure

13. If you do not have health insurance coverage, do you know where to go and get a free/low-cost Pap smear screening test?
□ Yes □ No □ Don’t know/Not Sure

14. Do you know that the state provides assistance for cervical cancer screening to qualified/low-income women?
□ Yes □ No □ Don’t Know/Not sure

15. What is the main source of information for your healthcare concerns?
□ Free clinic or health center □ Family members
□ Doctor’s office □ Church/Similar Organization
□ Community members □ Friends
□ Other - ____________________________
VITA

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Alliance of Professionals of African Heritage Academic Achievement Award
04/2003
Alliance of Professionals of African Heritage Academic Achievement Award
04/2006
University of Nevada, Las Vegas - Educational Leadership Sterling Award
05/2002

Publications:
Statewide Cervical Cancer Screening Program. *Journal of the Nevada Public
Health Association*, 1:21-29.

Thesis Title:
Saving Lives: Assessing knowledge and Awareness of Cervical Cancer Among
Women in Low-Income Families in Clark County, NV.

Thesis Examination Committee:
Chairperson, Dr. Chad Cross, Ph.D.
Committee Member, Dr. Michelle Chino, Ph.D.
Committee Member, Dr. Christopher Cochran, Ph.D.
Graduate Faculty Representative, Dr. Lee Bemick, Ph.D.