



NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF NURSING

**EFFECT OF CERVICAL CANCER LITERACY LEVELS ON CERVICAL CANCER
SCREENING, KNOWLEDGE AND BEHAVIOURS AMONG FOREIGN WOMEN
LIVING IN NORTHERN CYPRUS**

MASTER'S DEGREE

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KELLY IFEANYI MAFIANA

NICOSIA

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M.Sc. THESIS

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Approval

We certify that we have read the thesis submitted by Kelly Ifeanyi Mafiana titled “**Effect of Cervical Cancer Literacy Levels on Cervical Cancer Screening, Knowledge and Behaviours Among Foreign Women Living In Northern Cyprus**” and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Nursing Sciences.

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Declaration

I hereby declare that all information, documents, analysis and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

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Kelly Ifeanyi Mafiana

Name surname

DEDICATION

I dedicate this work to my parents, Late Patrick Ikechukwu and Mrs Queen Mafiana. My siblings, Kevin, Kester, Kizzy and Kieran Mafiana. I also dedicate this work to my teachers during this master's program and to every health care worker out there doing their best to make the world safe and better.

Abstract

EFFECT OF CERVICAL CANCER LITERACY LEVELS ON CERVICAL CANCER SCREENING, KNOWLEDGE AND BEHAVIOURS AMONG FOREIGN WOMEN LIVING IN NORTHERN CYPRUS

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Background: One of the primary cancers that kill women globally is cervical cancer, which has limited infectiousness and behaves epidemiologically like a venereal illness. Cervical cancer elimination is accelerated by human papillomavirus (HPV) vaccination and increased screening.

Aim: The aim of this study is to evaluate the effects of cervical cancer literacy level on cervical cancer screening, knowledge and behavior in foreign women living in North Cyprus.

Material and Methods: The sample group of our cross-sectional descriptive study consisted of 423 women from the population of women living in North Cyprus. The data were collected through the google form from November 2021 through July,2022. A questionnaire including sociodemographic characteristics and cervical cancer literacy scale were used as data collection tools and we made use of descriptive statistics like frequencies and percentages to have an overview of the sample. We also made use of student t-test and analysis of variance(ANOVA) for inferential findings.

Results: The study found 62.7% of respondents are unaware of cervical cancer screening in North Cyprus. Language barriers (48.6%) and Economical/financial barriers (32.6%) were

major barriers to participation in screening activities. The cervical cancer literacy scale mean score of the participants was found to be 22.60 ± 4.30 which was a considerable knowledge content. Cervical cancer literacy scale mean score of those who do not have knowledge about cervical cancer and who have disabilities in accessing health institutions related to reproductive health, especially women with cultural disabilities, were found to be significantly low.

Conclusion: Identifying barriers affecting the literacy level of cervical cancer is important for the protection of disadvantaged foreign women from cervical cancer.

Keywords: Cervical cancer, screen, knowledge, behaviours, health literacy

ÖZET

Giriş: Küresel olarak kadınları öldüren birincil kanserlerden biri, sınırlı bulaşıcılığı olan ve epidemiyolojik olarak zührevi bir hastalık gibi davranan rahim ağzı kanseridir. Rahim ağzı kanseri eliminasyonu, insan papilloma virüsü (HPV) aşılması ve artan tarama ile hızlandırılır.

Amaç: Bu çalışma ile Kuzey Kıbrıs'ta yaşayan yabancı kadınlarda serviks kanseri sağlık okuryazarlık düzeyinin serviks kanseri tarama, bilgi ve davranışlarına etkisinin değerlendirilmesi amaçlanmıştır.

Materyal ve Metod: Kesitsel tanımlayıcı araştırmamızın örneklem grubunu Kuzey Kıbrıs'ta yaşayan kadın popülasyonundan 423 kadın oluşturmuştur. Veriler, Kasım 2021'den Temmuz 2022'ye kadar google formu aracılığıyla toplandı. Veri toplama araçları olarak sosyodemografik özellikler ve rahim ağzı kanseri okuryazarlık ölçeğini içeren bir anket kullanıldı ve örneğe genel bir bakış için frekans ve yüzde gibi tanımlayıcı istatistiklerden yararlandık. Çıkarımsal bulgular için öğrenci t testi ve varyans analizinden (ANOVA) da yararlandık.

Bulgular: Çalışma, yanıt verenlerin %62,7'sinin Kuzey Kıbrıs'ta rahim ağzı kanseri taramasından habersiz olduğunu ortaya koydu. Dil engelleri (%48,6) ve Ekonomik/finansal engeller (%32,6) tarama faaliyetlerine katılımın önündeki başlıca engellerdi. Katılımcıların servikal kanser okuryazarlık ölçeği puan ortalaması 22.60 ± 4.30 olarak bulunmuştur. Servikal kanser ile ilgili bilgisi olmayan, üreme sağlığı ile ilgili sağlık kurumlarına ulaşımında engeli olanların özellikle kültürel engeli olan kadınların serviks kanseri okuryazarlığı ölçek puan ortalaması anlamlı düzeyde düşük bulunmuştur.

Sonuç: Serviks kanseri okuryazarlık düzeyini etkileyen engellerin saptanması dezavantajlı durumda olan yabancı kadınların serviks kanserinden korunmasın açısından önemlidir.

Anahtar Kelimeler: Serviks kanseri, tarama, bilgi, davranış, sağlık okuryazarlığı

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CHAPTER I

Introduction

Health literacy is a specific form of literacy; It is the degree in which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions. Health literacy reflects the ability to read and comprehend medical terminology, to understand instructions for taking medications, to read an appointment slip or medication label, to complete health-related forms and to navigate medical settings (Sharp, Zurawski, Roland, Toole & Hines 2002).

Knowledge and communication about cancer is a clinical and public health priority. When it comes to health literacy, individuals with limited health literacy are disadvantaged in their capacity to get, process, and understand both written and verbal cancer information. This would hinder their ability to access and navigate the cancer care system, make appropriate health decisions and act on health care information. “Numerous studies have shown that patients with poor health literacy tend to have difficulties obtaining, understanding and retaining health information” (Jayasinghe et al.,2016; Lillie, et al.,2007). People with poor health literacy are significantly less likely to participate in disease prevention and health promotion programs. Patients' socioeconomic factors, especially old age and a low education level are strongly related to lower levels of health literacy. Poor understanding of health information by cancer patients could negatively affect patients' distress levels. Because of poor understanding of health information, patients may feel dissatisfied with their care and have reduced overall well-being.

On a global domain, cervical cancer is a health disease of concern. It knows neither race nor color. Cervical cancer results from the inability and indecision of women to give proper care

and go for scheduled screening to access the state of their health. As a result, it has deeply destabilized and disrupted the general health of women, especially those aged 20-29 years and 40-49 years of age (Johnson, Head, Scott, & Zimet, 2020). This cancer is the fourth most common malignant cancer worldwide (Abugu & Nwagu, 2021; Olubodun, Odukoya, & Balogun, 2019). The disease is responsible for over 604,000 incident cases and over 342,000 mortalities yearly (WHO,2022). The morbidity and mortality rates stemming from cervical cancer vary according to geographical regions and age. Least developed countries such as Africa are worst hit by the upsurge of the growth of cancerous cells (Abugu & Nwagu, 2021; Imoto, Honda, & Llamas-Clark, 2020; Johnson et al., 2020; Olubodun et al., 2019; Pieters, Jean, Bell, Coffey, & Huchko, 2021). A recent study has shown that women of child bearing age 15-45 years old are more vulnerable to cervical cancer(Mengistu et al.,2022). On the specifics, the prevalence of cervical cancer is 3.2 per 100,000 and 14.2 per 100,000 for women of childbearing age, 20-29 years and 40-49 years old respectively (Karadag Arli, Bakan, & Aslan, 2019).

However, the incident cases of the diseases progressively decrease after 50 years of age and above (Karadag Arli et al., 2019). On a higher scale level, there is also a progressive rise on the incident rate of this malignant disease. Northern Cyprus have rather recorded a sharp progressive rise of cases and deaths implicated by cervical cancer. Cervical cancer is a major public health problem affecting middle-aged women, particularly in less-resourced countries like North Cyprus (Arbyn et al., 2020). According to a study carried out by the North Cyprus Cancer Registry, national estimates of 5-year survival range from less than 50% to more than 70% for cervical cancer, with regional variations(Pervaiz et al., 2017). Despite the efforts made in the last decades in the prevention of the cases and deaths, resulting from cervical cancer, North Cyprus still rank high among countries in the terms of death rate, after India, China, Brazil and Bangladesh (Rimande-Joel & Ekenedo, 2019). Beyond reports of deaths and

morbidity cases, cervical cancer also incurs a burden on the social lives of the citizens and economic status of countries (Cotton et al., 2007).

To prevent and mitigate the burden of cervical cancer, early screening approaches and use of efficacious vaccines have been recommended and these approaches aid in early detection of precancerous changes that can expose women to cervical cancer (Jia et al., 2013; Weng et al., 2020). Nonetheless, early cancerous screening and test for cancerous lesions, especially for women at risk are not necessarily done for symptomatic women (Mouallif et al., 2014). Most common screening and tests for precancerous lesions includes papanicolau (Pap) test, liquid base cytology, visual inspection using acetic acid and Human Papiloma Virus (HPV) testing (Johnson et al., 2020). Also, the major available types of vaccines against HPV infection include gardasil, gardasil 9 and cervarix. These mentioned vaccines offer more protection against high-risk HPV types (Lee et al, 2017). Among the high-risk type of HPV in Cyprus, the most common of them and their incident distributions are HPV16(17.7%), HPV31(12.9%), HPV58(7.1%), HPV68(4.6%), HPV18(4.1%) and HPV56(3.7%) (Binka et al, 2016).

Unfortunately, despite virulent nature of this aetiological agent of cervical cancer called HPV, only 64.7% of women are screened n every 3 years interval in Cyprus with the age bracket of those mostly screened falling within 45 and 54 years old. A report showed that there is no screening guideline for cervical cancer with screening option being the last resort, depending on the physician's recommendations (Bruni et al., 2019).

According to Yilmaz and colleagues, the commonest cause of cervical cancer is persistent infections by HPV-16 and HPV-18 serotypes (Yilmaz et al., 2010). Veins and others collaborated these findings nd further reported that other infections caused by HPV16 and 18 to include genital warts, oropharyngeal dysplasia and malignancies of penis, vagina and vulva. And risk sexual activities and behaviors have been implicated as the determinant of the virus

transmission. Also, at age of first sexual debut, having multiple sex partners and unprotected sex have been linked to the risk of HPV infection (Ribeiro et al., 2015). On a sociodemographic domain, low educational status, use of contraceptive pills, low socioeconomic status and smoking are strongly associated to the risk of HPV infection (Cotton et al., 2007). From the foregoing, studies have clearly demonstrated that cervical cancer is preventable, especially through early screening, cytological tests availability and operation of testing guidelines. Also, vaccination against the HPV has also been shown to be effective in preventing the incidence of cervical cancer. But despite these prolonged approaches to cervical cancer prevention and mitigation, knowledge of cancer screening is still low and behavioral perceptions and attitude toward the screening largely irrational.

In their study of “HPV infection and vaccines: knowledge, attitude and perceptions among female students at the university of Lagos, Lagos, Nigeria.” (Makwe et al., 2012), it was reported that only 17.7% of the students surveyed had heard about HPV and only 14.4% knew about the existence of the vaccine, while only 46.2% knew that the vaccine was given as a protection against cervical cancer. According, to Yu and colleagues, low level of education and income are major outliers implicating lack of knowledge about the virus (Yu et al., 2016). On a broader spectrum, other sociodemographic characteristics that act as a risk factor for cervical cancer includes but not limited to low education levels, high number of deliveries, short breast-feeding period, obesity and low socio-economic level (Karadag Arli et al., 2019).

Other previous studies in developed countries also demonstrated low knowledge about cervical cancer and HPV. However, few other studies also documented adequate knowledge about cervical cancer amongst women (Lee et al., 2013; Mouallif et al., 2014).

STATEMENT OF PROBLEM

The statement of the problem for the title "Effect of Cervical Cancer Literacy Levels on Cervical Cancer Screening, Knowledge, and Behaviours among Foreign Women Living in Northern Cyprus" is to investigate the impact of cervical cancer literacy levels on cervical cancer screening, knowledge, and behaviours among foreign women residing in Northern Cyprus. Despite the availability of cervical cancer screening programs, foreign women living in Northern Cyprus may have limited access to information and education about cervical cancer, which can result in low screening rates and poor knowledge and behaviours. Therefore, the study aims to assess the relationship between cervical cancer literacy levels and screening behaviour among foreign women, with the goal of providing valuable insights for developing targeted interventions to improve cervical cancer prevention and control strategies in this population.

1.2 PURPOSE OF THE STUDY STUDY

Examining the effect of health literacy level on knowledge and behaviors on cervical cancer screening is essential in preventing health challenges, protecting health, and being equipped to manage any health problems that may arise. It helps to understand the areas in which patients' knowledge needs to be improved regarding the workings of their bodies, as well as evaluate risks and benefits that affect human health and safety. The level of health literacy can significantly impact knowledge and behaviors regarding cervical cancer screening. Individuals with higher levels of health literacy are more likely to have accurate knowledge about the importance of cervical cancer screening, the risks and benefits of different screening tests, and how to access and utilize screening services

1.3 RESEARCH QUESTIONS

The general goal of the study is to assess the Effect of Health Literacy Level on Knowledge and Behaviours on Cervical Cancer Screening.

Specifically, the study seeks to:

- 1) What is the cervical cancer awareness level of foreign women in Northern Cyprus?
 - a) What is the cervical cancer awareness level of foreign women in Northern Cyprus?
 - b) What is the cervical cancer screening level of foreign women in Northern Cyprus?
 - c) What is the cervical cancer screening prevention and control level of foreign women in Northern Cyprus?
- 2) What are the factors affecting the cervical cancer literacy level of foreign women in Northern Cyprus?

SIGNIFICANCE OF THE STUDY

This can lead to increased engagement in preventive health behaviors, such as getting regular Pap tests or HPV vaccinations and can ultimately improve the detection and management of cervical cancer. On the other hand, individuals with lower levels of health literacy may struggle to understand complex medical information and may be less likely to seek out and utilize screening services. This can lead to missed early detection and treatment opportunities, contributing to higher rates of cervical cancer morbidity and mortality. In conclusion, this study is essential for healthcare providers to consider the health literacy level of their patients when providing information and recommendations about cervical cancer screening. This can help ensure that all individuals have access to the information and services needed to make informed health decisions. In the nursing community, it could keep nurses professional abreast

on keen ways on how to address disparity among women that seek clinical advice and counselling.

LIMITATIONS

Self-report bias: The survey method relies on self-reported information, which may be subject to bias and inaccuracies due to memory limitations, social desirability bias, or other factors that affect respondents' ability to report accurately.

Limited generalizability: The study sample may not be representative of the broader population of foreign women residing in Northern Cyprus, which limits the generalizability of the study findings.

Response rate bias: There may be a low response rate to the survey, which could introduce selection bias and impact the study's internal validity.

Limited depth of information: The survey method is useful for collecting large amounts of data from a wide range of respondents, but it may not provide sufficient depth of information on specific topics of interest, such as the factors that influence cervical cancer screening behaviour among foreign women.

DEFINITION OF TERMS

CCLAT: Cervical Cancer Literacy Assessment Tool

WHO: World Health Organization

SPSS: Statistical Package for the Social Sciences

CHAPTER II

2.1. Theoretical Framework

Concept I

Cervical cancer is the second leading cause of cancer-related death among women, creating a major public health concern (Han, 2014). It develops in a woman's cervix, which is the entrance to the uterus from the vagina and is usually a cancer that develops slowly may not have symptoms. Cervical cancer is usually caused by human papillomavirus (HPV) infection. Sometimes pre-cancer cells may become cancerous if they are not discovered and treated early(Liu et al.,2019).

Human papillomavirus (HPV) denotes to a group of over 100 virus strains that can cause warts or Papillomas and can only survive in the body cells that are located on the surfaces of the skin, throat, mouth, vagina, vulva, cervix, anus. These viruses are transmitted through skin-to-skin contact because of oral, anal, or vaginal sexual intercourse (American Cancer Society, 2011). HPV is present in 99% of cervical cancer cases. HPV is usually spread through sexual contact and can cause the cervix to be infected which may cause the cells of the cervix to change, becoming pre-cancerous. Warts caused by some HPV strains will appear in weeks, months, or even years after contact while many other strains produce no symptoms because the immune system of the body makes the viruses become inactive. In the advanced stage, there may be abnormal bleeding or discharge from the vagina, such as bleeding after sex or bleeding/spotting between monthly periods. Even though HPV has no treatments, the body's immune system will ordinarily eradicate 70% of HPV infections within a year and 90% within two years (American Cancer Society, 2011).

According to the American Cancer Society (2011), cervical cancer is diagnosed through four stages ranging from Stage I (which indicates the presence of a malignant tumor in the

cervix); Stage II (which indicates the spread of the cancer to the vagina but still within the pelvic region); Stage III (which indicates the cancer has spread to the pelvic wall and affecting kidney functions); and Stage IV (which indicates the spread of cancer from the cervix to nearby organs and other parts of the body) (Bhatla, et al., 2019).

2.1 Cervical Cancer Risk Factors

Some risk factors of cervical cancer include smoking which reduces the ability of the immune system to fight infections like HPV and introduces carcinogens into the body, poor dieting, reproductive health medications such as oral contraceptives which contain artificial versions of hormones and having a family history of cervical cancer (Yang et al., 2022).

In relation to cervical cancer, the human papillomavirus (HPV) is considered as the most important risk factor, having more than 150 related viruses, some of which are responsible for a type of growth called papillomas, otherwise as known as warts. Warts are caused by certain types of HPV which could be sited on or around the genital organs, as well as the anal area. These types of HPV are classified as low-risk types given the low possibility of being linked to cancer. There are HPV types considered to be high risks due to their link with cancer especially that of the cervix and vagina in women, penile in men and throat, mouth and anus in both genders. HPV in most cases get cleared, but in some cases where it does not go away and becomes chronic can lead to cervical cancer (American cancer society, 2020).

Sexual history is also a risk factor for cervical cancer, and is most likely affected by increasing the chances of HPV exposure. Sexual history includes having different sexual partners, becoming sexually active early in life, or having one partner considered to be high risk (due to HPV infection or many sexual partners) (American cancer society, 2020).

Smoking or exposures to cancer-causing chemicals are risk factors for cervical cancer as they make the immune system less effective in fighting HPV infections. According to

research, these substances tend to damage the DNA of cervix cells thus contributing to cervical cancer development.

Furthermore, having a weakened immune system puts people at higher risk for HPV infections. In order to destroy or slow the growth of cancer cells, the immune system is important. Women diagnosed with HIV tend to have their cervical pre-cancer develop into an invasive cancer faster than it normally would. Women taking drugs aimed at suppressing their immune response or have undergone an organ transplant are also at risk for cervical cancer are those taking drugs to suppress their immune response, such as those being treated for an autoimmune disease (American cancer society, 2020).

Research has revealed that prolonged use of oral contraceptives increases the risk of cancer of the cervix(Dyer,2002). The risk increases the longer it is taken and goes back down when stopped. Furthermore, Women who have had more than 3 full-term pregnancies are also at risk of developing cervical cancer, due to increased exposure to HPV infection with sexual activity. It is opined that hormonal changes during pregnancy has the tendency to make women prone to HPV infection or cancer growth. Another possibility is that pregnant women have weaker immune systems, which makes them prone to the infection(Wang et al.,2018).

Economic status is also a risk factor as low income who are unable to access good health care services and cervical cancer screening may not have the opportunity of being tested for cervical pre-cancers. Also, having a diet low in fruits and vegetables increases cervical cancer risk.

There are also risk factors that cannot be changed such as women who were administered Diethylstilbestrol (DES), a hormonal drug given to prevent miscarriage in women between the years 1938 and 1971 to prevent miscarriage. The daughters of such women who took these drugs while pregnant with them tend to develop clear-cell adenocarcinoma of the vagina or cervix. However, it is reported that out of every 1000 women who had mothers that took DES

during pregnancy, it is just 1 case of vaginal or cervical clear-cell adenocarcinoma that is seen, implying that about 99.9% of DES daughters do not develop these cancers. Finally, having a history of cervical cancer in the family increases the chances of developing the disease.

2.2 Cancer Screening

Screening is defined by Akwaowo & Vanni (2015) as population testing to detect early disease or precursors of a disease in asymptomatic individuals. It could be mass screening which is directed at the entire population or selective screening which is directed at individuals. This is a significant approach to detect cancer at an early stage and help reduce cancer mortality worldwide. It is closely associated with cancer literacy. Cancer literacy is defined as all the knowledge needed by a layperson to understand the information and advice the health system has to offer regarding prevention, diagnosis, and treatment of cancer (Diviani & Schulz, 2011).

Screening expedites early identification of undetected health conditions with the aid of tests, and screening for cancer has been an important method to reduce cancer mortality. Screening for cancer gives a person the advantage to find out about the disease at an earlier stage, increasing survival chances. Screening has been recommended nationally and globally though, a person's response to screening can be influenced by their beliefs, personal backgrounds, attitudes, and access to care (Shrestha et al., 2013). The rate of cervical cancer screening in developed countries is 63%, and 19% in developing countries. These screenings are done by teams at community health centers. Nurses actively work on these teams in addition to physicians (Tiraki & Yilmaz, 2017).

Screening tests that can help in the detection of cervical cancer before it develops include:Papanicolaou Test: this is generally referred to as a Pap smear and is the screening method employed in detecting precancerous conditions (such as abnormal cell changes) and tumors in a woman's cervix prior to and following the development of cervical cancer. It

checks for pre-cancers or cell changes on the cervix that can be treated. It was previously recommended that women commence receiving Pap smears about 3 years after they begin to have vaginal intercourse for women under 21, and annually for women over the age of 21, irrespective of their sexual history given other risk factors for cervical cancer such as a family history (USPSTF, 2003). Also, the American Cancer Society (2011) recommended that women over the age of 30 who have had normal Pap smear results 3 years in a row and are in a steady relationship may begin having the exam every 2 to 3 years. Women aged 70 and older who have not had abnormal Pap test results 3 or more times in a row and no abnormal results in the past 10 years, may cease to continue the Pap test. Similarly, it is recommended that a woman begins having a Pap test approximately 3 years after the first time she engages in sexual intercourse, or when she reaches the age of 21, whichever comes first. Women are also advised to continue having the Pap test every 1 to 3 years and women over 30 should have an HPV test conducted with their Pap test (National Cancer Institute, 2012). Women aged 65 and older are recommended to consult with health professionals concerning the frequency of their Pap tests.

This has however been updated over time as there are new recommendations by the American Cancer Society to help find cervical cancer early (WHO, 2021). These guidelines are not applicable to people previously diagnosed with cervical cancer or cervical pre-cancer, however it is recommended that undergo follow-up testing and cervical cancer screening based on the recommendation of their health care team. The new recommendations states that cervical cancer testing (screening) begin at age 25. It also recommends that those within the age of 25 to 65 undergo a primary HPV test every 5 years. However, where unavailable, screening may be done using a co-test that combines a Papanicolaou (Pap) test with an HPV test every 5 years or a Pap test alone every 3 years.

It is further recommended that those over the age of 65 and have not undergone regular screening in the past 10 years with normal results, and also not having any history of CIN2 in the past 25 years should discontinue cervical cancer screening. According to the American Cancer Society (2021), people who have undergone a surgery of hysterectomy should stop screening except the reason for the surgery was to treat cervical cancer or serious pre-cancer. Also, people who have had a hysterectomy without removal of the cervix are advised to continue cervical cancer screening according to the guidelines above (American Cancer Society, 2021).

HPV test: this looks for HPV, the virus that can cause precancerous cell changes and cervical cancer. It also identifies women at high risk for cervical cancer who may need treatment to prevent the disease.

Visual Inspection with Acetic Acid test known as VIA examines the cervix, using acetic acid to recognize abnormal changes on the cervix that can be treated to prevent cervical cancer. The test is conducted by means of a gynecological examination performed by a medical practitioner, who applies acetic acid to the cervix to observe for cell changes and the results given immediately and could be VIA positive, showing a pre-cancerous lesion, or VIA negative indicating no lesion (Pan American Health Organization, 2019).

2.3 Preventive measures

There are primary preventive measures that are available such as prophylactic vaccines against high-risk HPV though these can only be administered before sexual activity commences. With time, vaccination will reduce the prevalence of cervical cancer in women of younger age though screening will still be required. There are concerns about how useful and efficient these programs are and children receiving the vaccine require parental consent and the process of educating parents may be challenging to health practitioners (Radha & Era, 2017).

Secondary prevention is based on cervical screening which has been very effective in countries with existing resources to ensure excellent and good coverage of the population at risk.

Though, the cervical screening is commonly inefficient and impracticable in many counties of the world where suitable infrastructure is missing (Magdalena, 2009).

Cervical cancer is usually linked to human papillomavirus (HPV), a sexually transmitted disease. Reducing the impact of cervical cancer can be achieved with the aid of vaccination. Different types of HPV are spread through sexual contact and are associated with various cervical cancer cases. The vaccine approved for HPV is Gardasil 9 by the U.S. Food and Drug Administration to be used on girls and boys. The vaccine works to prevent various cases of cervical cancer especially when given before exposure to the virus. The vaccine further prevents vaginal and vulvar cancer, as well as genital warts, anal cancers, and cancers of the mouth, throat, head and neck for both men and women.

It is the recommendation of the Center for Disease Control and Prevention (CDC) that the HPV vaccine be given to girls and boys between the ages of 11 and 12 before their first sexual contact an exposure to HPV (CDC, 2020). Studies have shown that getting a vaccine at a young age is not linked to premature onset of sexual activity. Once a person is infected with HPV, the vaccine may not work properly. Also, the reaction to the vaccine is better in younger people than in older adults. Every 11- and 12-year-olds is recommended to receive two doses of HPV vaccine for at least six months separately by the CDC. It is further stated that adolescents between ages 9 and 10 and adolescents ages 13 and 14 be vaccinated through a two-dose program.

Teens and young adults who start a series of vaccinations later, when they are 15 to 26 years old, should receive three doses of the vaccine. The CDC recommends HPV vaccination for all people under the age of 26 inadequately vaccinated (CDC, 2019). The U.S. Food and

Drug Administration recently approved the use of Gardasil 9 for men and women aged 9 to 45 years. However, pregnant women or people who are very sick are not recommended for the HPV vaccine, as well as those with severe allergies; and life-threatening allergic reactions to the vaccine (Healthline, 2021).

2.4 Barriers to cervical cancer screening

Numerous factors prevent women from screening for cervical cancer such as difficult access to health services (Daley et al., 2011), barriers to belief and knowledge (Mutambara et al., 2017).

Barriers to cervical cancer screening contribute to differences in cervical cancer screening rates. In a qualitative study involving women with higher education, it is first suggested that women are inclined to have the opinion that cervical cancer is linked with sexual relations outside of marriage, so they are unwilling to make early detection. Also, women's fears, shame and pain, alongside cultural influences, prevent them from submitting to early detection.

Furthermore, the distrust of allopathic medicine and objective health care encourages negative opinions about early detection (Yunitasari et al., 2020).

The barriers to cervical cancer screening have been generally divided into personal and structural impediments (Akinlotan et al., 2017). Personal barriers include lack of knowledge of risk factors, fear of finding cancer, being screened by a male physician, recent immigration status, embarrassment, and presence of chronic diseases (Watts et al., 2009). Structural barriers on the other hand include cost, lack of transportation, taking time off work, fewer routine physician visits, lack of childcare, poor English proficiency, and lack of physician recommendation.

Perceived barriers to cervical screening in the setting of an organized programme include belief that screening is unnecessary in the nonappearance of symptoms, aversion of the

test and lack of desire to know the result (Marlow et al., 2015). Others include other priorities, inconvenient appointment times and mistrust in the health service.

Some studies have explored barriers to cervical screening among specific population subgroups, sampling based on language spoken, ethnicity, migration status or religion. A study of immigrant women in Sweden submitted that women felt their health was not seen as a priority in their home countries which resulted in their positive attitudes towards the availability of health care in Sweden but found it difficult to understand invitations and make appointments (Grandahl et al., 2012). It was suggested in another study of Eastern European migrants that language was a barrier, combined with lack of awareness, negative attitudes to the National Health Service (NHS) and time pressures (Jackowska et al., 2012).

2.5 Health literacy

Health literacy is defined as the extent to which people can obtain, communicating, processing, and understanding basic health information and services required to make suitable health decisions. A methodical appraisal of health literacy found that inadequate health literacy is linked with poor health status, less health knowledge and inadequate use of health services (Berkman et al, 2011).

In general, health literacy refers to the ability of a patient to obtain, process, understand, and use health-related information (Koay et al., 2012). Nutbeam (2008) defined health literacy as an individual's ability to get, process and comprehend basic health information and services needed to make knowledgeable and appropriate health decisions. Health literacy is not exclusively a patient-specific issue as health systems health care providers and health professionals all play important roles because they are responsible for placing many of the health literacy demands upon patients and families, like complex referral and booking systems. Efforts to improve cervical screening interests should thus recognize that complex processes

are often involved, which women can find challenging, even those with strong health literacy skills.

Research in health literacy is potentially able to address the role of knowledge on women's cancer screening behaviours. Health literacy comprises four components: oral literacy which includes the ability to communicate health-related questions and comprehend oral instructions from a healthcare provider (listening and speaking skills), print literacy according to Cutilli & Bennett (2009) has to do with the ability to review and apply information from non-continuous texts including forms, applications for services, maps, and nutrition labels (reading and writing skills), and numeracy (basic mathematical calculations) refers to the ability of an individual to read and understand dosages on prescription medications. Cultural and conceptual knowledge which denotes an individual's knowledge of health conditions and comprehension of health-related risks and benefits are health literacy components that can be greatly influential at an individual level (Koay et al., 2012). Within the concept of cultural and conceptual knowledge, the role of culture is essential in the development of a person's health-related attitudes and beliefs, and in the likelihood of additional health information being sought.

Health literacy entails knowledge of health-related terms, insurance and medical forms, medical and scientific acronyms, and medication labels as well as knowledge of the procedures of the healthcare system. It is more than the mere ability to read and write and requires an assortment of interrelated skills and the ability to apply these skills to health situations.

Inadequate health literacy has been identified by Malik et al. (2017) as one of the main barriers to functional health literacy. Studies have revealed that adolescents and young adults have higher levels of health literacy in comparison to older adults, but just about half still have limited knowledge of disease prevention (Berens et al. 2016). Building health literacy levels

and improving the knowledge and capability of adolescents and young adults to prevent diseases, is fundamental to better target public health interventions for cervical cancer prevention and screening practices for adolescents and young adults (Ayamolowo et al., 2020).

Health literacy is an important determinant of cervical cancer screening and possession of preventative knowledge (Kim & Han, 2016) as inadequate health literacy is one of the main barriers to functional health literacy, and people with limited health literacy are purportedly unable to keep to standardized instructions and fail to properly comply with follow-ups (Malik et al., 2017). Such people who are reportedly less informed about diseases, face high mortality rates (Hickey et al. 2018), have inferior self-management behaviour, and signify increased costs to health services (Mackey et al. 2016). Low health literacy results in difficulty understanding treatment methods, less benefits from preventive health services, failure to utilize opportunities for early detection of illnesses, and increases in the cost of health care services due to needless hospital admissions (Corrarino, 2013), and consequently, upsurges in morbidity and mortality rates.

2.6 The Role of Nurses in Increasing Health Literacy Level and Preventing Cervical Cancer

Health literacy is a requisite skill for making personal health and health care decisions. Low health literacy may contribute to lower cervical cancer screening rates and cervical cancer health disparities (Flores, Acton, Arevalo-Flechas, Gill & Mackert, 2019). Health literacy poses a challenge for many women to successfully navigate today's complex health system. Ebu, Amissah-Essel, Asiedu, et al. (2019) opined that although cervical cancer can be prevented through early screening and treatment of precancerous lesions, cervical cancer screening in Ghana seems to have been restricted to the regional and teaching hospitals as well as some few private health facilities, and most women at the community level lack access to cervical cancer screening services. According to these authors, the low level of awareness and

knowledge about the disease and screening are some of the factors impacting cervical cancer screening utilisation. Ebu, Mupepi, Siakwa, and Sampselle (2015) in their study showed conducted in Elmina, Ghana revealed that only 6.4% of women had knowledge about cervical cancer and 2.3% had knowledge about Pap smear tests. This implies that efforts to increase awareness, knowledge and understanding of the perceptions of women about cervical cancer and screening through the provision of an educational intervention will be an important step in promoting the health of women. A systematic review of studies conducted in developed settings strongly supports the use of health education programmes in increasing cervical cancer screening utilization and enabling women to increase their intention to screen (Limmer, LoBiondo-Wood, & Dains, 2014).

A study carried out in Nigeria revealed that the intervention increased the level of knowledge and awareness of cervical cancer and screening (Ramaswamy, et al, 2017). Coronado et al (2015) similarly found that in Jamaica, participants had a massive improvement in knowledge about cervical cancer risk factors, symptoms and prevention. Ahmed, Esa, and Mohamed (2018) in their study reported that cervical cancer intervention programme for married women in Egypt significantly improved their knowledge about the disease after the intervention. The foregoing studies highlight the important role of health education in shaping knowledge of health appropriate behaviours, motivating them to search for information on cervical cancer.

Abiodun et al (2014) showed in their study that health education intervention impacts knowledge of cervical cancer screening, as the intervention group used in the study was revealed to have higher scores after the intervention compared to the control group. It was rationalized that the participants probably had comprehensive information about screening during the education sessions, which enhanced their knowledge about cervical cancer screening. It is opined by Coronado et al (2021) that health education might enabled

participants to evaluate the complications associated with the disease and how these could impact their health and well-being, as evidenced in their study which found health education to have improved perception of the seriousness of cervical cancer.

Abu et al (2020) in their study examined the role of health education on cervical cancer screening uptake at selected health centers in Addis Ababa among female participants aged 30–49 years, who utilize the maternal and child health clinics but had never undergone cervical cancer screening. The intervention health centers educated all the eligible women one on one about cervical cancer and screening; while in the control health centers, participants received standard care from trained staff nurses. Data collected revealed that of the 2,140 women who participated in the study, 215 were screened for cervical cancer, with 152 of them reportedly from the intervention health centers. It was found that majority of the participants learned of screening benefits from the one-on-one health education and as such had higher odds of getting screened. This indicates that the provision of focused health education alongside the availability and distribution of printed educational materials tends to increase the uptake of cervical cancer screening services. (Gale, 2022)

Cervical screening has been proven to save lives, however the challenge reportedly lies in people not responding to the screening invite (Gale, 2022). It is rationalized that a lot of women are of the view that they are not at risk or probably worried about the test or simply choose not to attend (Gale, 2022). Apart from these group of people, there are vulnerable groups of people whose lifestyle might make it difficult for them to access regular screening (homeless people or those living in chaotic environments) which hinders them from understanding the importance of regular screening checks. Added to this are people with physical difficulties, learning difficulties or mental health issues, requiring particular consideration. It is to these group of people that Gale (2022) remarked that nursing services be made available to,; to discuss concerns and highlight screening importance thus addressing any

concerns about cervical screening, improving uptake and helping to reduce cervical cancer related death (Gale, 2022)

Early diagnosis of cancer are usually hindered by various factors such as poor knowledge, fear of screening, inadequate knowledge of screening strategies, and tests unavailability. These hindrances can be addressed by Nurses (Gakunga et al., 2019). Karimi (2016) observed that nurses in Iran are regarded as important members in the health care system, equipped to serve patients and maintain public health; as well as promote health through educational services. In this regard, they are in the best position to educate patients on cancer, screening methods and early diagnosis (Karimi, 2016).

It is the emphasis of WHO that nurses has an important role in the prevention and control of non-communicable diseases, such as cancer; as nurse-led interventions ensure early detection of cancer (WHO, 2017). Agide (2018) revealed that nurses play a leading role in nursing interventions and have independent decision making and authority in personalizing patient care. Nursing interventions can potentially help in the early detection of cancer through various procedures (Agide, 2018). Primarily, nurses promote cancer awareness and understanding, its threat perceptions, and early diagnosis through counseling, educating, and providing information on cancer symptoms, risks, and screening methods. Second, nursing interventions can increase the opportunity for early detection of cancer through improving service accessibility (Gakunga, et al., 2019). As recommended by WHO on 2017, the awareness of symptoms and access to care are the primary steps in the breast cancer detected early (WHO, 2017). Various studies have shown the positive impacts of nursing interventions on early detection of cancer. However, studies have shown contradictory results. Various approaches (e.g., a phone call, face-to-face meeting, and text message), content, and sample size can affect the obtained results in different interventions. Thus, consistent results

are difficult to obtain. Some studies failed to find a direct association between nursing interventions and early detection of cancer (Ersin & Bahar, 2017)

Larimi et al (2021) showed that nursing interventions positively affects early detection of cancer, knowledge and awareness about cancer, beliefs and breast cancer early detection, and precancerous lesions. WHO (2017) categorized nursing interventions into four different components which includes education, patient appointment reminder, counseling, and patient survey all used in nursing interventions. According to WHO (2017), instruction can progress cancer awareness and barrier identification. Numerous approaches have been used to remind the early detection behavior of cancer in clinical trial studies, and patient reminders have been widely reported in previous early cancer screening programs (Larimi et al, 2021). To eliminate barriers from early cancer detection, various methods are utilized such as evaluation, proper data, problem-solving, and inspiration. The significance of counseling in directing patients on how and where to get to early conclusion services is also emphasized on, as it is an extra strategy used to additionally progress early cancer detection.

Gakunga, et al. (2019) revealed that adding education to reminder interventions positively affects Pap smear testing by women. The study also confirmed that nursing interventions has the effect of improving colonoscopy. The study therefore advocates for counseling as a strategy in stress reduction and conquering the fear of anomalous screening results. The study therefore recommended the use of various nursing interventions alongside basic components and patient education and counseling to motivate patients to perform screening. Larimi et al, (2021) supporting the above view stated as an addition that increasing community knowledge about various cancers, their diagnosis and long-term effects is of importance.

CHAPTER III

3.0 Methodology

3.1. Research Design

Descriptive cross-sectional design was adopted in this study.

3.2. Location description

The study was carried out in the Turkish Republic of Northern Cyprus (TRNC), which is an Island in the Mediterranean sea occupying a total area of 3355 km² and with a 2017 estimation of 326,000 dwellers living in 6 regional districts, namely Lefkosa, Lefke, Gazimagusa, Girne, Guzelyurt, and Iskele. The seat of power in the country is Nicosia, and the official language is Turkish. The country is notable for tourism and the presence of international students in many of its top-rated universities.

There are many foreign students and citizens in the Turkish Republic of Northern Cyprus. In the 2019-2020 academic year, students from 140 different countries came to the TRNC and it was determined that there was a total of 41,219 foreign students in the TRNC. Students generally prefer to come to the TRNC from countries such as Nigeria, Jordan, Syria, Cameroon, Iran, Iraq, Zimbabwe, Pakistan, Democratic Republic of Congo, Egypt, Libya and Palestine. Apart from those who come as students, the number of people coming from foreign countries to work or live in the TRNC is substantial. It is seen that people who come as students prefer to settle in the TRNC and stay on the island. Foreign national women living in the TRNC constituted the universe of the study.

Population and Sampling

The questionnaires were be distributed online using Google form targeting forums and organizations meet ups with foreign women population and other social media networks living in North Cyprus. This entails women who are not Northern Cyprus Citizen living In North Cyprus. The women reached was also be encouraged to forward the questionnaire links to their friends, colleagues and relations meeting our research criteria. Convenience sample selection method was used to include foreign women in the sample group.

The sample size for this study is determined by Cochran’s sample size methodology (Cochran,1977).

$$n = \frac{z^2 pq}{e^2}$$

Where n = sample size; p = is the (estimated) proportion of the population=0.5; q=1-p = 0.5
Z = 1.96 (critical value at 95% confidence level from the Z distribution table) ; e = error of margin = 0.05

$$n = \frac{1.96^2 * 0.5 * 0.5}{0.05^2}$$
$$n = \frac{0.9604}{0.0025} = 384$$

Thus, the minimum sample size required for this study is 384

Inclusion criteria: English speaking, over 18 years old women, knowledge and familiarity with the use of internet/social media

Exclusion criteria: Women who have been diagnosed with gynecological cancer will be excluded from this study.

Data Collection Tools/Materials

A structured questionnaire was used to collect information that borders on the research objectives from the respondents. The questionnaire is divided into three sections. The first section relates to the socio-demographic attributes of the respondents, the second section borders on the general overview of the respondents on cervical cancer, and the last section examines the perception and attitude to cervical cancer screening using the cervical cancer literacy assessment tool (CCLAT).

Socio-demographic Questions: This questionnaire section details the respondents' demographic attributes. Questions asked included information about which included their age, income, religion affiliation, nationality, marital status, and other relevant characteristics.

General Overview Questions Form: The general questions evaluate respondents' general conception, ideas, and background information about cervical cancer and health behavior tendencies. Also, the genealogical conditions of respondents were assessed in this section, and equally, the information sources for cervical cancer (Zhang et al., 2020; Fontham et al., 2020).

Cervical Cancer Literacy Assessment Tool (CCLAT): The cervical cancer literacy assessment tool developed, which consists of three domains, was utilized in the questionnaire's third section(Williams & Templin, 2013). These domains are Awareness, screening and knowledge, and Prevention &control domains. The awareness domain seeks to measure how informed respondents were about cervical cancer, the screening and knowledge domain seeks to measure the knowledgeability of respondents on screening strategies for cervical cancer detection, and the Prevention &control domain seeks to assess how respondents seeks to be protective of cervical cancer. The CCLAT consists of 16 validated questions (Appendix 1).

3.4 Data Collection Procedures

Permission was obtained from the author who developed the scale for the cervical cancer literacy scale. For other questionnaires, the questionnaires were prepared by taking the opinions of 3 experts. After the questionnaires were created via google form, the questionnaire containing the purpose of the study was shared on social media platforms and women living in Northern Cyprus were invited to the study. The data were collected through different social media platforms. The data of our study were collected between 02.01.2022- 02-05.2022.

3.8 Data Analysis Procedures

Elicited data were a using Statistical Package for Social Science version 20.

The results were reported using percentage count, independent t-test, and one-way ANOVA Test. Frequency analysis was used to determine the socio-demographic characteristics.

Independent t-test and One-way ANOVA Test were used to conduct inferential analysis on collected data. The significance level for the analysis was a p-value of < 0.05 . The level of confidence 95%, sampling error of 5%.

Ethics Committee Permission: The Institutional Review Board (IRB) from Near East University has delivered to us the Ethical approval (23.12.2021-2021/98/1467) (Appendix 2).

CHAPTER FOUR

Findings

This chapter presents the findings based on the collected data.

Title: Findings for Research Question I

The highest number of participants in our study was Nigerian (199); It constitutes 46.7% of the total population participating in the research. This is followed Ghana (20.3) with 8.4% Zimbabwean (6.2%) Iranian (5.8%) Cameroon (5.1%), Jordan (4.8%), Kenya (1.6%), Canadian (1.1%) make up the countries of the other participants. Mean age of participants 27 ± 3.4 , 84.4% of the participants were single, 14.2% were married and 1.4% were divorced. Participants 15.7% had social security whereas 84.3% do not have.

Table 1.

Demographic Characteristics of the Participants (n=423)

Variables	n	%
Age		
18 - 30years	349	82.5
31- 40years	60	14.2
41 - 50years	12	2.8
Above 50years	2	0.5
Education level		
Primary education	4	0.9
Secondary education	18	4.3
Undergraduate education	253	59.8
Post graduate education	148	35
Employment status		
Fully employed	111	26.1
Unemployed	102	23.9
Still a student	210	50.0
Economic status		
High income		
Middle income	44	11.0
Low income	201	47.2
	178	41.8
Religion		
Christianity	298	71.0
Islam	67	15.8
Others	58	13.2

Marital status		
Single	357	84.4
Married	60	14.2
Divorced	6	1.4
Having children		
Yes	50	12.7
No	373	87.3
Number of children _____		
None		
1	373	87.6
2	18	4.2
3	17	4.0
4	8	1.9
5	5	1.2
8	1	0.2
	1	0.2
Social security		
Yes	64	15.7
No	359	84.3
Information about cervical screening in Cyprus		
Yes	156	36.6
No	267	62.7
Information resources		
Did not answer the question		
Friend	224	52.7
Doctor/gynecologist	16	3.78
Media	94	22.2
Legal practitioner	1	0.24
Health institution	1	0.24
Resource person	24	5.67
Teacher/lecturers	2	0.47
Cousin and other relationship	2	0.47
Online	6	1.41
	53	12.53

Table 1 presents the demographic information of the respondents. As indicated in the table, the study constitutes individuals from diverse age groups ranging between 18 and 50 with the highest population coming from between 18 and 30 (81.9%). As indicated in the Table, those with undergraduate education were the highest which covers 59.8% of the respondents and was followed by those with post graduate education with 34.9%. 26.1% were fully employed; 23.9 were unemployed whereas 50% were students. The economic status of the participants varies between high (11%); middle (47.2%) and low income (41.8%). 71% were Christians; 15.8 %

were Islamic and 13.2% selected others. 84.4% are single, 14.2% are married and 1.4% were divorced. Of the participants, 12.7% had children whereas 87.7% had none. The number of children, 18% had one; 17% had 2; 8% had 3; 5% had 4 children each, 1% had 5 and 8 children respectively. Of these participants, Only 15.7% had social security whereas 84.3% do not have. According to the outcome of the study, 62.7% do not have any information about cervical screening in Cyprus whereas 36.6% have had information about the cervical screening in Cyprus. Of this population, 3.78% got the information from friends; 22.2% get to know about the about cervical screening in Cyprus through their doctors/gynaecologists, 12.53% got the information online, 5.67% got the information through health institution; 0.47% selected other sources .

Table 2.

Evaluation of the Gynaecological Conditions of the Participants

Statement	Response option	n	%
Barriers to accessing reproductive health services in Cyprus	Yes	64	15.0
	No	189	45.1
	Don't know	170	39.9
Barriers (n=64)*	Cultural Barriers	6	9.4
	Economical/Financial Barriers	25	39
	Language Barriers	30	46.9
	Religion	3	4.7
Having a gynaecological problem (n=423)	Yes	57	13.4
	No	366	85.9
Gynecological problems	Those who skipped the question	368	86.4
	Myoma uteri	8	1.9
	Endometriosis	7	1.6
	Ovarian cyst	22	5.2
	Uterine polyps	5	1.2
	Pelvic inflammatory diseases	3	0.7
	Other	10	2.3
Regular gynecological examination status	Yes	159	37.6
	No	264	62.4
Frequency of going to gynecological examination?	Rarely	19	4.5
	Sometimes	86	20.2
	Always	52	12.2
	Skipped	265	63.1
Knowledge of the Pap test	Yes	248	58.6

	No	175	41.4
Source of information about the Pap test	Skipped	174	40.8
	From a workshop/seminar	22	5.2
	Health care institutions	121	28.4
	Family	11	2.6
	Media (TV, radio, internet, newspaper/magazine)	61	14.3
	Friends)	34	8.0
Family history of cervical cancer	Yes	34	8.0
	No	259	60.8
	I don't know	130	31.2
Have a previous Pap smear test	Yes	131	30.9
	No	292	69.1
Frequency of having a Pap smear test	Rarely	51	12.0
	Sometimes	63	14.9
	Always	16	3.8
	Skipped	292	68.5
Reasons for not having a Pap smear test	Skipped	235	55.2
	The test is not available	71	16.7
	Fear of the test	37	8.7
	Test is not important	33	7.7
	shy/embarrassed about the test	45	10.6
Knowing that HPV can help prevent cervical cancer	Yes	209	49.4
	No	214	50.6
have been vaccinated against HPV	Yes	102	24.1
	No	321	75.9
Cervical cancer screening is essential for early detection and prevention of cervical cancer	Yes	308	72.3
	No	115	27.7

The result presented in Table 2 above gives an overview of Cervical Cancer Screening to determine their overall perception of the concept. As indicated in the Table above, 15% of the respondents are in agreement that there are barriers that affect accessing adequate reproductive health care in Cyprus; while 45.1% disagreed; with 39.9% who claimed they do not know. For those who agreed that there are indeed barriers in accessing adequate reproductive health care in Cyprus. Some of these barriers include cultural barriers (12.2%); economical/financial

barriers (32.6%); language barrier (48.8%); religion (5.6%). From these responses, the highest barrier is language, followed by economical/financial barriers, then cultural barrier; and finally, religion barrier.

From the data gathered, it was revealed that 13.9% of the participants had gynecological related issues are while 85.4% do not. For those with gynecological problems, the most common one was Ovarian cysts (5.2%). Other conditions identified include: Myoma uteri (1.9%); Endometriosis (1.6%); Uterine polyps (1.2%); Pelvic inflammatory diseases (0.7) while 2.3% of the respondents selected others.

It was revealed that 8.0% of the respondents have family history of cervical cancer, 31.2% do not know whether or not they have such history whereas 60.8% do not. 30.8% of the participants have in one time or the other undergone Pap smear tests While 68.5% never did. For those who had undergone the test, 3.8% always go for the test, 14.9% do the test sometimes whereas 12. % Rarely go for the test. Regarding the reason for not taking the tests, 16.7% respondents revealed that the test has never been available for them; 8.7% are afraid of the tests; whereas 10.6% are embarrassed or shy of taking the test. 49.5% are aware that HPV can help prevent cervical cancer while 50.6% does not. 23.9% admitted having used HPV before whereas 75.9% has never used it. 72.3% believe that early detection of cervical cancer screen increases the chances of its prevention.

Table 3.

Cervical Cancer Literacy Scale and Subscale Mean Scores

Cervical Cancer Literacy Scale and Sub-scale	Total Scale M±SD	Min-Max
Total score scale	12.60±4.30	0-16
Awareness sub-scale	1.65±0.64	0-2
Screening sub-scale	3.69±2.54	0-5
Prevention & control sub-scale	6.26±2.47	0-9

From table 3 above, it could be seen that the average score for respondents on the cervical cancer survey instrument is 12.60 ± 4.30 . The sub-scales averages for the awareness, screening, and prevention & control sub-scales are 1.65 ± 0.64 , 3.69 ± 2.54 and 6.26 ± 2.47 respectively.

Table 4.

Evaluation of Cervical Cancer Literacy Scale Scores According to Socio-Demographic Status

Socio-demographic status	Total Scale M \pm SD	Awareness M \pm SD	Screening M \pm SD	Prevention & Control M \pm SD
Education Level				
Primary (n=4)	13.00 \pm 5.74	1.25 \pm 0.96	3.75 \pm 3.20	7.25 \pm 3.30
Secondary(n=18)	10.72 \pm 4.83	1.50 \pm 0.71	2.11 \pm 2.65	6.11 \pm 2.50
Undergraduate(n=253)	12.60 \pm 4.41	1.74 \pm 0.55	3.71 \pm 2.50	6.16 \pm 2.53
Post-Graduate(n=148)	12.83 \pm 3.99	1.54 \pm 0.73	3.69 \pm 2.54	6.44 \pm 2.35
*P-value	0.269	0.008	0.055	0.592
Employment Status				
Fully employed (n =111)	12.42 \pm 4.39	1.79 \pm 0.50	3.34 \pm 2.79	6.29 \pm 2.45
Not employed (n =102)	11.95 \pm 4.12	1.43 \pm 0.75	3.34 \pm 2.56	6.18 \pm 2.45
Still a student (n =210)	13.03 \pm 4.32	1.69 \pm 0.61	4.04 \pm 2.34	6.26 \pm 2.47
*P-value	0.101	0.001	0.017	0.918
Income Status				
High Income(n=44)	12.52 \pm 5.55	1.66 \pm 0.64	3.11 \pm 3.04	6.75 \pm 2.89
Middle Income(n=201)	12.31 \pm 4.44	1.54 \pm 0.72	3.56 \pm 2.59	6.20 \pm 2.53
Low Income(n=178)	12.97 \pm 3.76	1.78 \pm 0.50	3.98 \pm 2.31	6.21 \pm 2.29

*P-value	0.323	0.001	0.079	0.389
Religion				
Christianity(n=298)	12.54±4.28	1.66±0.66	3.64±2.50	6.24±2.51
Islam(n=67)	12.67±4.51	1.81±0.43	3.99±2.64	5.88±2.36
Others(n=58)	12.88±4.22	1.44±0.68	3.57±2.59	6.85±2.32
*P-value	0.856	0.007	0.578	0.088
Marital Status				
Single(n=357)	12.74±4.16	1.62±0.66	3.78±2.49	6.34±2.39
Married(n=60)	12.22±4.93	1.88±0.37	3.33±2.69	6.00±2.91
Divorced(n=6)	9.00±5.18	1.50±0.84	4.83±3.06	4.67±1.51
*P-value	0.080	0.010	0.088	0.174
Women with Children?				
Yes(n=50)	23.08±4.60	1.94±0.24	3.90±2.27	6.24±3.17
No(n=373)	22.55±4.26	1.62±0.66	3.66±2.57	6.27±2.37
**P-value	0.411	0.001	0.534	0.940
Have a social security number?				
Yes(n=64)	11.48±4.70	1.72±0.58	2.61±2.86	6.16±2.42
No(n=359)	12.81±4.20	1.64±0.64	3.88±2.42	6.28±2.48
**P-value	0.023	0.385	0.001	0.703

* One-way ANOVA Test

** Independent t-test

In the table 4, after conducting the comparison analysis test, it was found that there is no statistically significant difference between education and the total scale of the cervical cancer instrument ($P > 0.05$). However, we found a significant difference in the awareness sub-scale ($P < 0.05$). A post hoc analysis revealed that undergraduate students have better awareness (1.74 ± 0.55) followed by respondents with post-graduate education (1.54 ± 0.73) while those with primary (1.25 ± 0.96) and secondary education (1.50 ± 0.71) have lower awareness scores.

It was found that there is no statistically significant difference between employment status and the total scale of the cervical cancer instrument ($P>0.05$). However, we found a significant difference in awareness and screening sub-scales respectively ($P<0.05$). For the awareness sub-scale, a post hoc analysis revealed that the fully employed students have better awareness (1.79 ± 0.50) followed by respondents who are still students (1.69 ± 0.61) while those unemployed have low awareness scores (1.43 ± 0.75). For the screening sub-scale, a post hoc analysis equally revealed that individuals who are still students have higher scores (6.29 ± 2.45) in contrast to those fully employed (6.18 ± 2.45) and the unemployed (6.26 ± 2.47).

Similarly, it was found that there is no statistically significant difference between income and the total scale of the cervical cancer instrument ($P>0.05$). However, we found a significant difference in the awareness sub-scale ($P<0.05$). For the awareness sub-scale, a post hoc analysis revealed that low-income earners have higher awareness scores (1.78 ± 0.50) followed by respondents with high-income status (1.66 ± 0.64) while those with middle income had the least score (1.54 ± 0.72).

Likewise, it was found that there is no statistically significant difference between religious inclination and the total scale of the cervical cancer instrument ($P>0.05$). However, we found a significant difference in the awareness sub-scale ($P<0.05$). For the awareness sub-scale, a post hoc analysis revealed that those who identified to be affiliated with Islam religion have higher awareness scores (1.81 ± 0.43) followed by respondents who practice Christianity (1.66 ± 0.66) while those with other forms had the least score (1.44 ± 0.68).

Also, it was found that there is no statistically significant difference between marital status and the total scale of the cervical cancer instrument ($P>0.05$). However, we found a significant difference in the awareness sub-scale ($P<0.05$). For the awareness sub-scale, a post hoc analysis revealed that those married had higher awareness scores (1.88 ± 0.37) followed by

those who are single (1.62 ± 0.66) while those that are divorced had the least score (1.50 ± 0.84). The analysis also was found that there is no statistically significant difference between childbearing status and the total scale of the cervical cancer instrument ($P > 0.05$). However, we found a significant difference in the awareness sub-scale ($P < 0.05$). For the awareness sub-scale, a post hoc analysis revealed that children have higher awareness scores (1.94 ± 0.24) followed by those that do not have children have a lower score (1.62 ± 0.66).

Furthermore, it was found that there is a statistically significant difference between social security enrolment and the total scale of the cervical cancer instrument ($P < 0.05$). Those with no security number have a higher score (12.81 ± 4.20) than those who have social security number (11.48 ± 4.70). A significant difference was also reported in the awareness sub-scale ($P < 0.05$). For the awareness sub-scale, the analysis revealed that those without social security have higher awareness scores (3.88 ± 2.42), and those with social security reported a lower score (2.61 ± 2.86).

Table 5.

Evaluation of Cervical Cancer Literacy Scale Scores According to Knowledge and Barriers Related to Cervical Screening

Cervical screening	Total Scale M±SD	Awareness M±SD	Screening M±SD	Prevention & Control M±SD
Heard information about cervical screening				
Yes(n=64)	11.48±4.70	1.72±0.58	2.61±2.86	8.16±2.42
No(n=359)	4.72±0.58	1.61±2.86	3.16±2.42	8.28±2.48
**P-value	0.023	0.385	0.001	0.703
Barriers to accessing reproductive health services				
Yes(n=64)	10.39±4.75	1.79±0.51	2.63±2.83	4.97±2.75

No(n=189)	13.29±4.01	1.69±0.63	4.19±2.25	6.40±2.09
Don't know(n=170)	12.69±4.30	1.56±0.68	3.53±2.59	5.60±2.61
*P-value	0.001	0.233	0.001	0.001
Types of Barriers experience (n=64)				
Cultural Barriers(n=6)	6.10±5.19	1.60±0.69	1.90±3.21	5.60±2.72
Economic/Financial Barriers(n=25)	9.71±4.67	1.80±0.53	2.31±2.63	6.60±3.01
Language Barriers(n=30)	11.09±4.30	1.67±0.67	2.67±2.76	7.76±2.28
Religion Barriers(n=3)	10.70±3.83	1.30±0.67	3.30±2.11	7.10±2.33
*P-value	0.046	0.417	0.213	0.040

* One-way ANOVA Test * One-way ANOVA Test ** Independent t-test

From the table 5 above, it was found that there is a statistically significant difference between information awareness of cervical screening in Cyprus and the total scale of the cervical cancer instrument ($p < 0.05$). Those that received information about cervical screening in Cyprus have a higher total score (11.48 ± 4.70) than those who do not have a lower score (4.72 ± 0.58). A significant difference was also reported in the awareness sub-scale ($p < 0.05$). For the awareness sub-scale, the analysis revealed that those with no such information in Cyprus have a higher screening score (2.61 ± 2.86) and those who do have information about cervical screening in Cyprus reported a lower score (3.16 ± 2.42).

Also, it was found that there is a statistically significant difference between barriers status in terms of access to reproductive healthcare and the total scale of cervical cancer instrument, and the screening and prevention & control sub-scales respectively ($p < 0.05$). By post hoc analysis, those that do not experience an access barrier have a higher total scale score (13.29 ± 4.01) than those who indicated experience of an access barrier (10.39 ± 4.75). In the screening sub-scale,

those that do not experience an access barrier have a higher score (4.19 ± 2.25) than those who indicated experience of an access barrier (2.63 ± 2.83). Also, in the prevention & control sub-scale, those that do not experience an access barrier have a higher score (6.40 ± 2.09) than those who indicated experience of an access barrier (4.97 ± 2.75).

Likewise, it was found that there is a statistically significant difference between forms of barriers and the total scale of the cervical cancer instrument ($p < 0.05$) and in the prevention & control sub-scale ($p < 0.05$) but no significance in other subscales ($p > 0.05$). For the Total scale, a post hoc analysis revealed that language barriers had the highest scores (11.09 ± 4.30) followed by religion barriers (10.70 ± 3.83), Economic/financial barriers (9.71 ± 4.67), and the least score being cultural barriers (6.10 ± 5.19). In the prevention & control sub-scale, the post-hoc test revealed that language barriers had the highest score (7.76 ± 2.28) and followed by religion barriers (7.10 ± 2.33) while cultural barriers have the lowest score (5.60 ± 2.72).

Table 5.

Evaluation of Cervical Cancer Literacy Scale Score According to Gynaecological Problems

Gynaecological problems	Total Scale M±SD	Awareness M±SD	Screening M±SD	Prevention & Control M±SD
Gynecological problem				
Yes(n=57)	9.93±4.87	1.67±0.58	2.16±2.91	5.11±2.79
No(n=366)	13.03±4.06	1.65±0.65	3.93±2.39	6.45±2.37
**P-value	0.001	0.881	0.001	0.001
Type of Gynecological problem				
Myoma Uteri(n=8)	8.63±4.30	1.75±0.71	2.13±2.64	5.75±2.60

Endometriosis(n=6)	8.67±3.82	1.17±0.75	3.17±3.06	5.33±1.75
Ovarian Cyst(n=20)	11.35±4.85	1.85±0.37	4.55±2.48	5.00±3.15
Uterine Cyst(n=5)	6.00±5.34	1.40±0.55	2.00±2.00	5.60±3.44
Pelvic Inflammatory diseases(n=3)	9.33±4.51	2.00±0.01	4.33±2.31	4.00±2.65
Other (n=10)	0.60±5.13	1.90±0.32	4.50±3.17	5.20±2.57
*P-value	0.285	0.031	0.029	0.808
Regularly go to Gynecological examinations				
Yes(n=159)	12.97±3.93	1.77±0.53	4.14±2.40	6.06±2.19
No(n=264)	12.39±4.51	1.58±0.69	3.42±2.58	6.39±2.62
**P-value	0.176	0.003	0.005	0.193
Frequencies in Gynecological examination				
Rarely(n=19)	9.95±5.23	1.79±0.54	2.84±2.75	5.32±2.85
Sometimes(n=87)	12.31±4.11	1.75±0.53	3.91±2.48	5.64±2.43
Always(n=51)	14.82±2.29	1.88±0.38	1.88±0.38	6.78±1.30
*P-value	0.001	0.295	0.001	0.006

* One-way ANOVA Test ** Independent t-test

In table 6, it was found that there is a statistically significant difference between the report of a gynecological problem and the total scale score of cervical cancer instrument, the screening and prevention & control sub-scales respectively ($p < 0.05$). Those that do not report gynecological problem have a higher total scale score (13.03 ± 4.06) than those who indicated to have gynecological problem (9.93 ± 4.87). In the screening sub-scale, those that do not have a gynecological problem have a higher score (3.93 ± 2.39) than those who have a gynecological problem (2.63 ± 2.83). Also, in the prevention & control sub-scale, those that do not have a

gynecological problem have a higher score (6.45 ± 2.37) than those who indicated to have a gynecological problem (5.11 ± 2.79).

Furthermore, it was found that there is no statistically significant difference between types of gynecological problems and the total scale score of the cervical cancer instrument and the prevention & control sub-scale, respectively ($p < 0.05$). A post hoc analysis was conducted for the awareness and screening subscales. In the awareness sub-scale, those with pelvic Inflammatory diseases have a higher total scale score (2.00 ± 0.01), closely followed by those with Ovarian Cyst (1.85 ± 0.37). In contrast, those with Endometriosis had the least score (1.17 ± 0.75). In the screening sub-scale, those suffering from ovarian cysts had the highest score (3.50 ± 2.48), while the least score was those with Myoma Uteri problem (2.13 ± 2.64).

Moreover, it was found that there is no statistically significant difference between regular gynecological examination and the total scale score of cervical cancer instrument and the prevention & control sub-scale respectively ($p < 0.05$). However, there are statistically significant results in the awareness and the screening sub-scales ($p < 0.05$). In the awareness sub-scale, those who go for regular gynecological examination reported a high score in the sub-scale (1.77 ± 0.53), while those who didn't report had a lower score (1.58 ± 0.69). Also, in the screening sub-scale, those that usually go for the gynecological examination have a higher score (4.14 ± 2.40) than those who indicated not having regular examinations (2.84 ± 2.75).

Test also shows that there is a statistically significant difference between the frequency of gynecological examination and the total scale score of cervical cancer instrument, screening, and the prevention & control sub-scale, respectively ($p < 0.05$) except in the awareness sub-scale ($p > 0.05$). By post-hoc analysis, in the total score scale, those who always go for gynecological examination have the highest score (14.82 ± 2.29), followed by those who go sometimes (12.31 ± 4.11), and those who rarely go had the least score (9.95 ± 5.23). In the

screening sub-scale, those who go sometimes for gynecological examination reported the highest score in the sub-scale (3.91±2.48). In the prevention & control sub-scale, those that usually go always for the gynecological examination have a higher score (6.78±1.30), followed by those who go sometimes (5.64±2.43) while those who rarely go have a lower score (5.32±2.85).

Table 6.

Evaluation Of Cervical Cancer Scale Score of Participants According to Pap Smear Test and Human Papillomavirus Awareness

Pap smear test and human papillomavirus awareness	Total Scale M±SD	Awareness M±SD	Screening M±SD	Prevention & Control M±SD
Heard information about Pap test before?				
Yes(n=248)	12.96±4.08	1.78±0.53	3.89±2.44	6.28±2.19
No(n=175)	12.12±4.57	1.47±0.73	3.40±2.65	6.25±2.83
**P-value	0.049	0.01	0.048	0.894
Information source about Pap Smear test				
Workshop/seminar(n=22)	8.45±4.29	1.50±0.74	1.86± 2.51	5.09± 2.41
Friends(n=34)	10.91±4.06	1.82±0.52	2.97± 2.49	5.12± 2.46
Healthcare institutions(n=121)	14.21±3.25	1.85± 0.42	4.56±2.02	6.79± 1.67
Family(n=11)	13.00±3.79	1.55± 0.82	3.45± 3.24	7.00 ± 2.09
Media(n=61)	13.11±3.79	1.75± 0.51	4.13±1.99	6.23±2.49
*P-value	0.001	0.022	0.001	0.001
Do you have any family history of cervical cancer?				
Yes(n=34)	9.56±3.68	1.59±0.66	2.44±2.72	5.53±1.66
No(n=259)	12.44±4.29	1.77±0.53	3.73±2.41	5.94±2.48
I don't know(n=130)	13.75±4.04	1.44±0.76	4.53±1.66	7.10±2.44

*P-value	0.001	0.001	0.001	0.001
Have you undergone a Pap smear test before?				
Yes(n=131)	12.98± 4.01	1.79± 0.49	3.99±2.64	6.19±1.67
No(n=292)	12.45± 4.4	1.59± 2.69	3.55±2.48	6.29±2.76
**P-value	0.240	0.003	0.101	0.681
Frequency of having a Pap smear test				
Rarely(n=54)	13.06± 3.53	1.91±0.29	4.07±2.63	6.07±1.33
Sometimes(n=63)	12.24± 4.56	1.73±0.54	3.62±2.70	5.89±1.98
Always(n=16)	14.75±24.75	1.81±0.54	4.56±2.34	7.37±0.72
*P-value	0.076	0.119	0.378	0.006
Reasons for not having pap test				
Test unavailability(n=72)	12.53±4.82	1.79±0.47	3.65±2.53	6.08±2.99
Fear of the test(n=39)	11.51±3.80	1.85±0.47	2.92±2.26	5.74±2.38
Test is unimportant(n=34)	11.26±5.38	1.59±0.73	2.56±2.49	6.12±3.30
Shyness/embarrassment(n=45)	13.36±4.50	1.78±0.56	4.07±2.24	6.51±2.56
*P-value	0.158	0.202	0.023	0.671
Can HPV vaccine can help prevent cervical cancer?				
Yes(n=131)	12.98±4.01	1.79±0.49	3.99±2.64	6.19±1.67
No(n=292)	12.45±4.43	1.59±0.68	3.55±2.48	6.29±2.76
**P-value	0.240	0.003	0.101	0.681
Have you received an HPV vaccine before				
Yes(n=102)	12.87±4.01	1.69±0.59	3.67±2.72	6.51±1.91
No(n=321)	12.53±4.39	1.64±0.65	3.69±2.48	6.19±2.62
P-value	0.480	0.454	0.914	0.251
Essentiality of cervical cancer screening in cervical cancer detection and prevention				
Yes(n=309)	12.81±4.02	1.82±0.45	3.82±2.44	6.18±2.31

No(n=114)	12.06±4.98	1.21±0.84	3.34±2.76	6.50±2.86
**P-value	0.111	0.001	0.086	0.235

* One-way ANOVA Test ** Independent t-test

According to the table 7 above, it was found that there is a statistically significant difference between awareness of information about pap test and the total scale score of cervical cancer instrument, awareness, and the screening sub-scales, respectively($p < 0.05$). However, there is no statistically significant result in the prevention & control sub-scale($p > 0.05$). In the total score scale, those who are aware of information about pap test have a higher score (12.96 ± 4.08) than those who do not (12.12 ± 4.57). In the awareness sub-scale, those who were aware about Pap test a high score in the sub-scale (1.78 ± 0.53) while those who don't report have a lower score (1.47 ± 0.73). Also, in the screening sub-scale, those aware of information about pap test have a higher score (6.28 ± 2.19) than those who do not have information about Pap test (6.25 ± 2.83).

Also, it was found that there is a statistically significant difference between the source of information and the total scale score of the cervical cancer instrument($p < 0.05$). Also, all the sub-scale components were statistically significant($p < 0.05$). By post-hoc analysis, in the total score scale, those who heard about pap test from healthcare institutions have the highest score (4.21 ± 3.25), followed by those who heard from media sources (13.11 ± 3.79). Those who indicated hearing about pap test from workshops have the lowest score (8.45 ± 4.29). In the awareness sub-scale, those who got to know from health care institutions have the highest score (1.85 ± 0.42) followed by those who heard from friends (1.82 ± 0.52). The least score was reported among those who heard about it from workshop or seminars (1.82 ± 0.52). In the screening sub-scale, those who got to know from health care institutions have the highest score (4.56 ± 2.02) followed by those who heard from media sources (4.13 ± 1.99). The least score

was reported among those who heard about it from workshops or seminars (1.86 ± 2.51). In the prevention & control sub-scale, those who got to know from family members have the highest score (7.00 ± 2.09) followed by those who heard from healthcare institutions (6.79 ± 1.67). The least score was reported among those who heard about it from workshops or seminars (5.09 ± 2.41).

Similarly, it was found that there is a statistically significant difference between a family history of cervical cancer and the total scale score of the cervical cancer instrument ($p < 0.05$). Also, all the sub-scale components were statistically significant ($p < 0.05$). By post-hoc analysis, in the total score scale, those who do not know about their family history of cervical cancer have the highest score (13.75 ± 4.04), followed by those who do not have a family history of cervical cancer (12.44 ± 4.29). In the awareness sub-scale, those who do not have a family history of cervical cancer have the highest score (1.77 ± 0.53) than those who have a family history of cervical cancer (1.59 ± 0.66). In the screening sub-scale, those who do not have a family history of cervical cancer have the lowest score (2.44 ± 2.72) than those who have a family history of cervical cancer (3.73 ± 2.41). Also, in the prevention & control sub-scale, those who do not have a family history of cervical cancer have the lowest score (5.94 ± 2.48) than those who have a family history of cervical cancer (5.53 ± 1.66).

Likewise, it was found that there is no statistically significant difference between undergoing a Pap Smear test before and the total scale score of cervical cancer instrument, screening, and the prevention & control sub-scales, respectively ($p > 0.05$). However, there is a statistically significant result in the awareness sub-scale ($p < 0.05$). In the awareness sub-scale, those who have had a pap smear test before have a higher score (1.79 ± 0.49) than those who have not undergone a pap smear test (1.59 ± 2.69).

Furthermore, it was found that there is no statistically significant difference between the frequency of the pap smear test and the total scale score of the cervical cancer instrument($p>0.05$). Also, the awareness and screening sub-scale components were found to be non-statistically significant($p>0.05$) except for the prevention & control sub-scale that is significant($p<0.05$). By post-hoc analysis in the prevention & control sub-scale, those who always have undergo pap smear test have higher scores (7.37 ± 0.72) than those who sometimes undergo pap smear test sometimes (5.89 ± 1.98).

Also, it was found that there is no statistically significant difference between reasons for not having pap test and the total scale score of the cervical cancer instrument($p>0.05$). Also, the awareness and prevention & control were found to be non-statistically significant($p>0.05$) except for the screening sub-scale which is significant($p<0.05$). By post-hoc analysis in the screening sub-scale, those who indicated shyness/embarrassment for not having a pap test had higher score (4.07 ± 2.24), closely followed by those who indicated test unavailability (3.65 ± 2.53) while those who considered the test to be unimportant have the lowest score (2.56 ± 2.49).

Likewise, it was found that there is no statistically significant difference between knowledge of cervical prevention by HPV and the total scale score of cervical cancer instrument, screening, and the prevention & control sub-scales, respectively($p>0.05$). However, there is a statistically significant result in the awareness sub-scale($p<0.05$). In the awareness sub-scale, those who have knowledge of cervical prevention by HPV have a higher score (1.79 ± 0.49) than those who have such knowledge (1.59 ± 0.68).

By conducting an independent sample t-test, it was found that there is no statistically significant difference between the status of recipient HPV recipient and the total scale score of

cervical cancer instrument, awareness, screening, and the prevention & control sub-scales, respectively($p>0.05$).

In the same vein, it was found that there is no statistically significant difference between the essentiality of cervical cancer screening and the total scale score of cervical cancer instrument, screening, and the prevention & control sub-scales, respectively($p>0.05$). However, there is a statistically significant result in the awareness sub-scale($p<0.05$). In the awareness sub-scale, those who consider cervical cancer screening to be essential have a higher score (1.82 ± 0.45) than those who do not consider it to be essential to preventing cervical cancer (1.21 ± 0.84).

CHAPTER FIVE

5.0 DISCUSSIONS

In our study, which evaluated the effect of cervical cancer health literacy level on cervical cancer screening, knowledge and behaviors in foreign women living in Northern Cyprus, the sample group consisted of 423 foreign women from 6 different countries.

In our study, we found the cervical cancer literacy scale mean score of the participants to be 12.60 ± 4.30 (Table 3). This entails a considerable level of literacy on cervical cancer. However, in previous studies (Williams & Templin, 2013; Kim&Hans,2015). The sub-scales have scores have been used to make comparison and measurable implications on cervical cancer literacy level. Our present study found that Awareness sub-scale score is 1.65 ± 0.64 , Screening sub-scale is 3.69 ± 2.54 and Prevention & control sub-scale 6.26 ± 2.47 . The Awareness sub-scale score of 1.65 ± 0.64 indicate that there is moderate awareness, the Screening sub-scale of 3.69 ± 2.54 and Prevention & control sub-scale of 6.26 ± 2.47 indicates a moderetely high screening and prevention&control knowledge. This is consistent with previous studies on examination of cervical cancer literacy studies(Wang et al.,2014; McInerney, & Gerkovich,2016; Diaz et al.,2016, Mehta et al.,2016).

In our study, socioeconomic disparities are evident in the awareness of cervical screening across different socioeconomic factors (Table 4). This evidence is closely linked to the findings about the socioeconomic implication on breast cancer and cervical cancer screening study consisting of participants recruited from China, India, Mexico, Russia, and South Africa, summing to a total of 22 283 women, and between the ages 18 to 65. The study affirmed that breast and cervical cancer screening were positively correlated with higher individual, parental, and life-course social and economic status; however, education-based socio-economic status measures were a more significant predictor of screening than employment-based indicators. Actionable methods that could considerably raise screening rates in low-income and middle-income nations include increasing awareness of the advantages of

cancer screening and incorporating it into routine healthcare for women from low social and economic status (Akinyemiju et al., 2016). The result of this study also supports earlier studies such as Lee et al. (2016) and Walsh and O'Neill (2015) respectively. These studies also found disparities in cervical cancer screening based on socioeconomic status of the women.

Even though the total score scale for the education levels is not significant, however, we found a substantial statistically significant difference in the awareness subscale (Table 4). We found that higher education literacy is characterized by more awareness about cervical cancer. This conclusion is equally corroborated by the conclusion reached in Ghare et al. (2018) systematic review on cervical cancer awareness in women. Their study found that education literacy heightens the understanding of women to learn more about promotional items that drive cervical cancer awareness. Similarly, Rosyda et al., (2018) opined that the level of education of women gravitates them to a higher likelihood of participation in cervical screening than women with lower education levels. The result of this study supports Musselwhite et al. (2016)'s study on cervical cancer screening and found discrepancies in the number of women with higher educational achievement, compare with those with poor educational attainment. Likewise, Johnson et al., (2020)'s study that share similar result which found that low education attainment and economic capacity is a risk factor for low literacy level in cervical cancer awareness.

We found that high economic status operationalized by employment status and income is associated with knowledge of screening and awareness of cervical cancer (Table 4). Individuals who are not employed and those with low income have lower awareness and screening knowledge of cervical cancer. The conclusion reached in a study by some Korean researchers on employment status on cervical cancer screening using a 2013 Korea National Health and Nutrition Examination Survey database found higher screening among fully

employed participants than among under-employed participants (Kim et al., 2016). Similarly, the result of this study supports Buskwofie et al (2020)'s study that found similar result their studies to determine disparities in cervical cancer disparity. According to the study, those with high economic status participants more in regular cervical cancer screening as against those with low economic status. A recent study by Benavidez et al (2021) also found that those economically disadvantaged women, particularly those from low-income and uninsured women, continue to be underrepresented in screening efforts.

Marital status was found to be significant in terms of cervical cancer awareness (Table 4). This current study found that married women are more aware of cervical cancer than single and divorced. This conclusion is congruent with the research outcome of Hanske et al (2016) with the objective to research the effects of marital status on the usage of colorectal, cervical, and breast cancer screening. They used age-appropriate screening cohorts from the 2012 Behavioural Risk Factor Surveillance System Survey. The United States Preventive Services Task Force guidelines in force at the time of the 2012 survey were used to establish the appropriate screening level for breast, cervical, and colorectal cancer. Their study found that a more significant percentage of married women (83.9%) underwent cervical cancer screening compared to 75.1% of unmarried/divorced participants that did. The result of this study supports Orji and Yamashita, (2021) who found that women were discriminated upon by racism. The study further revealed that those who were married participates more than women who are still singles. A similar result was found in the study by Amin, Kolahi, Jahanmehr, *et al.* (2020). This study also found disparity in women's participation in cervical cancer screening in terms of marital status. The married women were more in participation compare to unmarried and divorced women.

This present study also drew a conclusion that individuals who face barriers such as language barriers, religion, or economic challenges are disadvantaged in the knowledge of cervical cancer and procedures for prevention & control of this ill health condition (Table 5). Healthcare barriers have been identified as a major driver for health inequalities and disparity. Studies have shown that language barriers and financial distress are major predictor factors discouraging low-income individuals from seeking healthcare (Schwarz et al.,2022; Allen et al.,2017; Kullgren et al.,2012). In the same vein, Akinlotan et al., (2017) reached a conclusion by itemizing language barriers, male physicians, and other forms of cultural barriers to the uptake of cervical cancer screening. Similarly, an Indonesian scoping review was carried out by Gianna et al., (2021) to investigate some barriers to cervical cancer screening. Their study found that observed demand-side hurdles to undergoing cervical cancer screening were a lack of knowledge/awareness and a reluctance to believe in screening, a lack of spouse support and approval, ridicule, fear, and fatalism, among other factors.

Our study also found that women with gynecological problems such as pelvic inflammatory diseases and ovarian cysts have a greater understanding of cervical cancer and screening initiatives (Table 6). This aligns with the summary finding of a study conducted in Tanzania to examine women's perceptions towards cervical cancer and cervical cancer screening. They found that women with a family history of gynecological problems are more willing to embrace screening diagnosis than those without such a history (Weng et al.,2020). Also, people with a routine gynecological examination are predisposed to greater awareness and screening procedures for cervical cancer than non-regulars. People with prior awareness of pap tests have a greater understanding of cervical cancer and screening procedures than people unfamiliar with this test. The result of this study is in agreement with Shin et al (2018) who revealed that those with gynaecological problems were more in numbers compare with women

with no gynaecological issues were fewer. The reason may be because these women go to hospital for a different test and got referred to do cervical cancer screening.

This study also posited that people who had awareness about pap tests from healthcare institutions and from media sources have a greater understanding of cervical cancer than from any other source (Table 7). Individuals with greater awareness of the Human papillomavirus vaccines are found to have a greater awareness of cervical cancer. When examining the impact that media has on cervical cancer screening in their study, Schliemann et al., (2018) posited a finding suggesting that media initiatives, particularly those promoting cervical cancer screening, were beneficial in increasing diagnostic adoption in Asia.

CHAPTER VI

Conclusion and Recommendations

This chapter presents conclusions based on the research findings according to the objective and sub objective(s) of the research and gives recommendations accordingly.

5.1 Conclusion

Following the conclusion of this study, the following inferences can be drawn from our study.

They are stated as follows:

- 47.2% of the participants said that they are at the middle income level (income equal to expenditure).
- 82.5% of respondents are within the age bracket of 18-30 years.
- Majority of the participants have bachelors qualification(59.8%) and post-graduation education level(35%)
- 62.7% of the participants stated that they did not have any knowledge about cervical screening in Cyprus.
- The mean score of the cervical cancer literacy scale of the women in the sample group was 12.60 ± 4.30 demonstrating substantial literacy level.
- Those with no social security number have a higher score (12.81 ± 4.20) than those who have social security number (11.48 ± 4.70).
- Cancer awareness level of women with gynecological problems is lower than have not gynecological problems (19.93 ± 4.87).

- The cervical cancer literacy scale mean score of women who went to infrequent gynecological examinations was found to be low (9.95 ± 5.23).
- Cervical cancer literacy level of those who have barriers to accessing reproductive health services was found to be low (10.39 ± 4.75). Among the barrier, it was found that women with cultural barriers had the lowest scores (6.10 ± 5.19).

RECOMMENDATION

Thus, we recommend that:

- (1) That greater awareness of the need for cervical cancer screening be adopted to increase participation.
- (2) The awareness should include both the use of technologies, social media, mass media, radio and television, as well as rallies to be organized on areas/locations occupies by primarily people of lower social, economic and educational attainment in order to enable her participation
- (3) Given that those with gynaecological issues are more likely to participate highly in cervical screening, it is important to include as one of the recommendations for women who comes to the hospital for issues related to fertility or other issues.
- (4) More cervical screening centres should be position to the areas that are currently at disadvantaged such as areas dominated by people with lower social, economic and educational attainment in order to enable her participation
- (5) The obstacles experienced by foreign women who have disabilities in accessing health institutions should be determined. The reasons for these obstacles should be determined and arrangements should be made to remove the barriers affecting health services.

FUTURE RESEARCH RECOMMENDATIONS

A future study could be conducted to explore the effectiveness of different educational interventions on improving cervical cancer literacy levels, screening behaviors, and knowledge among foreign women living in Northern Cyprus. This study could involve a randomized controlled trial where participants are assigned to receive different educational interventions, such as group-based education sessions or personalized counseling, to determine which approach is most effective in improving cervical cancer outcomes. Additionally, the study could also examine the role of cultural and linguistic factors in influencing the effectiveness of these interventions, as well as the impact of social support and healthcare access on cervical cancer screening and care among foreign women living in Northern Cyprus

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Appendix 1

Effect of Cervical Health Literacy Levels on Cervical Cancer Screening, Knowledge and Behaviors among Foreign Women Living in Northern Cyprus

I am a student from the faculty of Nursing at Near East University, North Cyprus. This study was planned as a master's thesis. The aim of this questionnaire is to help assess health literacy about cervical cancer screening among women. If you are not female, please do not answer the questionnaire. Answering this questionnaire will take 10 minutes averagely. Before answering the questions, please read the questionnaire carefully and answer all the questions. There are no right or wrong answers. Please answer all questions honestly and choosing to participate in this study is voluntary. The data/information gathered during and after this study will remain confidential and secured. You are invited to fill questionnaire without writing your names. Thank you for your participation and spending time to complete this questionnaire.

Do you agree to participate in the study?

Yes () No ()

Socio-demographic section

(1) What is your age?.....

(2) What is your education level?
 Primary education secondary education Undergraduate education Post graduate education

(3) What is your employment status?
 Fully employed Unemployed Still a student

(4) How would you describe your economic status?
 High income Middle income Low income

(5) What is your religion?
 Christianity Islam Others

(6). What is your Nationality?

(7). What is your marital status?
 Single Married Divorced

(8) Do you have children?

Yes No

(9) If yes in question (8), how many? _____

(10) Do you have social security?

Yes No

General Overview Questions

(11) Have you had any information about cervical screening in Cyprus?

Yes No

(12) If yes in question (11), who gave you the information? _____

(13) Do you have any barriers in accessing adequate reproductive health care in Cyprus?

Yes No

(14) If yes in question (13), what barriers:

Cultural Barriers

Economical/Financial Barriers

Language Barriers

Religion

(15) Do you have a gynecological problem you are experiencing?

Yes No

(16) If yes in question (15), which of this:

- Myoma uteri
- Endometriosis
- Ovarian cyst
- Uterine polyps
- Pelvic inflammatory diseases
- Uterine adhesion
- Other

(17) Do you regularly go to gynecological examinations?

- Yes No

(18) If yes in question (17) , how often do you go?

- Rarely Sometimes Always

(19) Have you heard information about Pap test before?

- Yes No

(20) If you selected Yes in question (19), where did you hear this from?

- From a workshop/seminar
- Friends
- Health care institutions
- Family
- Media(TV, radio, internet, newspaper/magazines)

(21) Do you have any family history of cervical cancer?

- Yes No I don't know

(22) Have you undergone a Pap smear test before?

- Yes No

(23) If yes in question (22), how often do you have pap smear test?

- Rarely Sometimes Always

(24) If “no” what are the reasons for not having PAP test in question (22) Why?

- The test is not available
- Fear of the test
- Test is not important
- I am shy/embarrassed about the test

(25) Do you know HPV (Human papillomavirus vaccines) can help prevent cervical cancer?

- Yes No

(26) Have you received a HPV (Human papillomavirus vaccines) before?

- Yes No

(27) Cervical cancer screening is essential for early detection and prevention of cervical cancer

- Yes No

SECTION TWO

THE CERVICAL CANCER LITERACY ASSESSMENT TOOL

Awareness

1. Cervical cancer is preventable.

- True False

2. Cervical cancer is a slow growing cancer.

- True False

Screening and Knowledge

3. A woman should begin to have a Pap test after she becomes sexually active or when she turns

21years, whichever comes first.

- True False

4. If a woman had a pap test in the past with results that were abnormal, she does not need to continue getting regular Pap test.

True False

5. A woman is at risk for getting cervical cancer if she has unprotected sexual intercourse.

True False

6. I should request a Pap test from my healthcare provider if I have (choose one):

- Bleeding after sexual intercourse
- Bleeding between menstrual periods
- Bleeding after menopause
- All of the above
- None of the above

7. I should request a Pap test if (choose one):

- I have vaginal secretions that have an odor
- I have pelvic pain
- I have painful sexual intercourse
- I am sick, have back pain, or am in poor health.
- All of the above
- None of the above

Prevention and Control

8. Using condoms decreases a woman's chance for getting HPV infection that is the main risk factor for cervical cancer.

True False

9. Precancerous changes and early cancers of the cervix generally do not cause pain.

True False

10. When detected early, cervical cancer can be cured.

True False

11. There are resources in my community for low and no cost cervical cancer screenings.

True False

12. Getting a Pap test is very painful.

True False

13. Women who do not have sexual intercourse do not need to get a Pap test.

True False

14. Pap tests are for women in childbearing years. Older women do not need it.

True False

15. The following are risk factors for cervical cancer (choose one):

- Giving birth to many children
- Having multiple sexual partners
- Having sexual intercourse with someone who has multiple partners
- Having a weak immune system
- All of the above
- None of the above

16. Recovery from cervical cancer depends on (choose one):

- The stage of the cancer
- The type of cancer
- The size of the cancer
- All of the above
- None of the above



**YAKIN DOĞU ÜNİVERSİTESİ
BİLİMSEL ARAŞTIRMALAR ETİK KURULU**

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