

**AWARENESS, SCREENING AND ROLE OF MEN IN PREVENTION OF CERVICAL  
CANCER AMONG TEA FARM WORKERS OF NANDI HILLS DIVISION IN NANDI  
COUNTY, KENYA**

**BY**

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of Master of Public Health at the  
School of Public Health and Community Development of  
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## DECLARATION

This thesis is my original work and has not been presented to any other university for a degree or any other award.

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## **DEDICATION**

I dedicate this thesis to the Almighty God who has been my source of strength and wisdom.

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## ABSTRACT

Despite being preventable with early screening and treatment, Cervical Cancer (CC) is a leading cause of cancer-related mortality among women globally. Incidence rate of cervical cancer in the USA is 8.9 per 100 000, while in India, the incidence rate vary from 19 to 44/100 000. In the UAE there is incidence rate of 7 per 100,000 women, while current estimates indicate that 493 000 women in South Africa are diagnosed with (CC) per year and 274 000 die from the disease. In Kenya, estimates indicate that every year 2454 women are diagnosed with (CC) and 1676 die from the disease. Studies have revealed that awareness of CC, awareness of screening methods, and support from male partners highly enhance prevention of CC, although the same has not been established in areas where incidence rates are high. The purpose of this study was to establish the awareness of, screening and role of men in prevention of cervical cancer among tea farm workers of Nandi hills Division. Study objectives were to establish the level of awareness of cervical cancer; to determine the level of awareness of cervical cancer screening; to determine the role of men in the prevention of cervical cancer; and to determine the relationships between awareness of cervical cancer screening, role of men and prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya. The study adopted Cross-sectional survey design. Target population comprised all women aged 15 years and above who had not been screened for CC and were not participating in CC prevention. A total of 425 respondents were recruited and a standardized questionnaire used for data collection. Reliability of instrument was enhanced through test retest during a pilot study involving 42 women from Nandi tea estate, where Cronbach's Alpha of 0.70 was attained. Descriptive and Logical Regressions methods were used for data analysis. Findings revealed that 76.4% of the respondents have heard about CC, with the main source of information being radio (39%). Findings also reveal that 61% have not heard CC screening. Pap smear screening method is most commonly used (66%) and the main reasons for not attending CC screening is the distance to clinic location (26.6%). Majority (83.8%) of the women considered CC screening to be important, with 75.1% of them willing to participate in the exercise. The study reported that most men (74.5%) have not discussed CC with their partners, while 89.5% of them do not know if their wives have been screened for CC. Equally, findings from the males indicate that 6.7% of the females have been screened. Further, 81.2% of the males are willing to pay for the transport of their spouses to CC screening clinics. However, 81.2% of the males have never accompanied their partners to CC screening clinics. Logistic regression analysis showed that men who were involved in CC services were 2 times more likely to report higher CC prevention level than those who did not (OR 2.229, 95% CI: 0.048-4.941;  $p < 0.048$ ). Further, the results showed a statistically significant association between awareness on CC screening and prevention (OR 0.567, 95% CI: 0.000-0.770;  $p < 0.001$ ) and also awareness on CC had a significant association with prevention (OR 0.286, 95% CI: 0.000-0.421;  $p < 0.001$ ) all other factors being constant. This would be significant in policy making, designing and formulating health systems thus increasing availability of HPV vaccination, population-based cervical screening and diagnostic services. The study recommends that awareness campaign for CC and screening methods should be enhanced among both women and men so that uptake of the same is achieved and sustained in the area.

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## **LIST OF ABBREVIATION AND ACRONYMS**

AIDS-	Acquired immunodeficiency syndrome
ANC-	Antenatal care
ANOVA-	Analysis of variance
CI-	Confidence interval
DNA-	Deoxyribonucleic Acid
HIV-	Human immunodeficiency virus
HPV-	Human Papillomavirus
ICC-	Invasive cervical cancer
ILO-	International Labor Organization
IUCD-	Intrauterine Contraceptive Devices
KNH-	KenyattaNationalHospital
NGO-	Non Governmental Organization
PAP Smear-	Papanicolaou test
PR-	Prevalence Rate
RH-	Reproductive Health
SIL-	Squamous Intraepithelial Lesion
SPSS-	Statistical Package for the Social Sciences
STDs-	Sexually transmitted diseases
STI-	Sexually Transmitted infections
TB-	Tuberculosis
UAE-	United Arab Emirates
USA-	United States of America
VIA-	Visual Inspection with Acetic acid
VIL-	Visual Inspection with Lugol's Iodine
WHO-	World Health Organization



## OPERATIONAL TERMS

<b>Attitude</b>	relates to one's acceptability of an individual to HPV and cancer screening, and willingness to be treated.
<b>Awareness</b>	means knowing cervical cancer, its symptoms and risk factors and its effects on the society with interest in all that it entails towards its management and prevention
<b>Cancer control</b>	describes the totality of activities and interventions that are intended to reduce the burden of cervical cancer in a population either by reducing cancer incidence or mortality or by alleviating the suffering of people with the cancer.
<b>Cancer</b>	is the fully developed (malignant) tumour with a specific capacity to invade and destroy the underlying mesenchyme of the cervix through local invasion process.
<b>Cervix</b>	Is the lower, narrow part of the uterus (womb). The uterus, a hollow, pear-shaped organ is located in a woman's lower abdomen, between the bladder and the rectum. The cervix forms a canal that opens into the vagina, which leads to the outside of the body as shown in the picture below (Medterms, 2002).
<b>Involvement</b>	Is being actively involved in cervical cancer services, in the middle or thick of things; abreast of the current popular trends and medical issues
<b>Prevention</b>	refers to early detection, diagnosis, treatment, psychosocial support, and palliative care as components of cervicalcancer control that can reduce the cancer burden.
<b>Risk factors</b>	refer to environmental or inherited influences that increase the chance of one getting cervical cancer.
<b>Screening</b>	is the testing of a normal population to detect the clinical or preclinical disease of cervical cancer.
<b>Papanicolaou Smear (Pap smear):</b>	is a quick, simple procedure in which a few cells are scraped from the cervix with a special instrument and then examined under a microscope for abnormalities.
<b>Palliative Care:</b>	is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.
<b>Stigma:</b>	Is a mark of disgrace associated with a particular circumstance, quality, or person in cervical cancer services.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background Information

Successful implementation of cervical cancer (CC) prevention initiatives directly contributes to the achievement of the 2010 United Nations (UN) Secretary General's Global Strategy for Women and Children's Health and to the 2011 Political Declaration of the UN General Assembly High Level Meeting on Non- Communicable Diseases (WHO Guidance Note, 2013). Moreover, cervical cancer is highlighted in the "Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases" as well as the "comprehensive global monitoring framework" under development (P. 2). These notwithstanding, despite being preventable with early screening and treatment, cervical cancer is a leading cause of cancer-related mortality among women in developing countries such as Kenya (Rosser, *et al*, 2014). This high burden of disease is largely a result of lack of access to screening services and inadequate screening uptake due to female patients' limited awareness about screening (Ronco *et al.*, 2014). Research has also suggested that a lack of male involvement may be an overlooked obstacle to cervical cancer screening (Rosser *et al.*, 2014). However, the extent to which limited awareness to screening and lack of male involvement affect prevention of cervical cancer has received minimum attention of researchers, particularly in low income countries.

Cervical cancer remains a leading cause of death globally. Incidence rate of cervical cancer in the USA is 8.9 per 100 000 (Ramathuba, *et al.*, 2016), and more than 10 000 new patients develop the disease and another 3600 women die from the advanced stage of it annually. It is estimated that approximately 16 out of every 100 000 women in United States of America will develop cervical cancer and approximately 9 out of 100 000 will die from it (P. 1). In India, the incidence rate for cervical cancer has been reported to vary from 19 to 44/100 000 women in various cancer registries (Naveen, *et al.*, 2014). The Ministry of Health of the United Arab Emirates reports around 50-55 cases annually in the UAE with an incidence of 7 per 100,000 women; half of these cases occurring in relatively young women aged 35-55 years (Ortashi, *et al*, 2012).

In Africa, current estimates indicate that 493 000 women in South Africa are diagnosed with cervical cancer per year and 274 000 die from the disease (Ramathuba, *et al.*,2016), while the incidence rate of cervical cancer in Nigeria is 28.5 per 100,000 women (Balogun,*et al.*,2012). In East Africa region, the WHO (2010) reports that Tanzania has one of the highest cervical cancer burdens in the world with incidence rate of 50.9 cases per 100,000 women.

According to WHO (2015), cervical cancer is caused by the sexually-transmitted human papilloma virus (HPV). It is the uncontrolled growth of cells on the cervix (the mouth of the uterus/womb) (Atuhaire, 2013). Cells on the cervix begin to grow slowly and abnormally over several years usually taking 10 to 20 years for invasive cancer to develop after the precancerous lesions are identified (Marlow, *et al.*,(2015).Khan, *et al.*,(2016) assert that HPV is the most common viral infection of the reproductive tract. The virus is a renowned cause of cervical cancer but also other cancers including the vulva, anus, vagina, penis, head and neck.

Most sexually active women and men will be infected at some point in their lives and some may be repeatedly infected. The peak time for acquiring infection for both women and men is shortly after becoming sexually active. Skin-to-skin genital contact is a well-recognized mode of transmission for HPV (WHO, 2015).Many HPV strains are asymptomatic and clear up quickly, but a few infect the cervix and cause pre-cancerous lesions that can advance to cancer (Atuhaire, 2013).It is worth to note that high income countries have successfully reduced the cervical cancer burden by between 70 percent (Ali, *et al.*, 2010) and 80 percent (Modibbo, *et al.*,2016) by developing and using a number of primary and secondary preventive approaches of organized cytological based pap smears screening programmes. But whether the success or failure of such screening programmes are based upon awareness or support from male counterparts remains unknown, particularly in low and middle income countries like Kenya.

Cervical cancer can easily be detected and cured during early stages if screening for HPV is done in time (Khan, *et al.*, 2016), although the extent that screening is being conducted among plantation workers particularly tea farm workers remains unknown. Equally, studies that have focused on CC screening have also not fully revealed the extent to which it has directly contributed to CC prevention. Marlow, *et al.*(2015) established in a study among Black, Asian and Minority Ethnic (BAME) background women in Britain that these women are less likely to

attend cervical screening than White British women. Similarly, Ncube *et al* (2015) discovered in a study among Jamaican women that only 16% (n=403) had had a Pap test within the past year. Still, it is becoming evident that: one, there is limited research focusing the extent to which participation in screening has influenced prevention of CC; two, studies focusing on CC screening among plantation workers like tea farm workers seem to be scanty.

Detection and prevention of HPV as well as CC require concerted effort, and the contribution of men is largely essential (Pitts, *et al*, 2009). According to Muia, *et al.*, (2010), men play a role in their partners' reproductive health experiences in multiple ways, from shared decision-making or granting permission for certain services to providing financial support and transport for health services. Nonetheless, researchers seem to have paid minimum focus with regard to the role of men in prevention of CC. Moreover, few studies focusing on involvement of men have not covered populations working within plantations such as tea farms. A study done in the USA by Treviño, *et al.*, (2011) to determine the impact of Latino males on their spouses cancer screening behaviours established that men have little knowledge about breast or cervical cancer screening and are unfamiliar with their partners' screening histories. Another study by Rosser, *et al.*, (2014) explored men's knowledge and attitudes about cervical cancer screening in Kenya in order to understand the role of male partner support in women's utilization and treatment. It found that that specific knowledge about cervical cancer risk factors, prevention, and treatment was low. From the foregoing works by Treviño, *et al.*, (2011) and Rosser *et al.*, (2014) it is clear that information regarding role of men in prevention of CC is scanty.

In Kenya, Kei, *et al.*, (2016) assert that estimates indicate that every year 2454 women are diagnosed with cervical cancer and 1676 die from the disease. Cervical cancer ranks as the 2<sup>nd</sup> most frequent cancer among women in Kenya and the 2<sup>nd</sup> most frequent cancer among women between 15 and 44 years of age. About 38.8% of women in the general population are estimated to harbor cervical cancer HPV infection at a given time. Health records (Republic of Kenya, 2016) indicate mortality incidents among women were caused by cervical cancer. The foregoing statistics thus queries the level of awareness of CC, awareness of CC screening, and the role of men in prevention of cervical cancer.

## **1.2 Problem Statement**

Major UN bodies have laid emphasis on the need of cervical cancer prevention as a positive step in the attainment of healthier lives of women and children. WHO guidance note points out that for successful achievement of CC prevention among women, there must be adequate awareness of CC, awareness of screening approaches as well as support from male partners. While a number of studies have revealed that there is adequate level of awareness of CC in the developed world, developing countries have been shown to display mixed level of awareness, although limited information is available with regard to workers in tea farms. Conversely, while awareness of CC screening approaches has been documented as low, with developing countries like Kenya demonstrating very low levels, little is known concerning the same among tea farm workers. Developing countries have also demonstrated inadequate support in CC prevention support from men, who are the principal partners of women in a matrimonial relationship, although such an issue has not been documented among families in tea farms. The health problems attributed to CC in Kenya is scaring, having the highest incidence of cancer of the cervix in sub-Saharan Africa. Moreover, among the 20 countries globally with highest global mortality of Cervical Cancer by absolute numbers, Kenya ranks 7<sup>th</sup>. It is therefore critical to establish from the workers in tea farms the level of awareness of CC, the awareness of CC screening, and the role of men in prevention of CC. This was necessary because studies from developed countries have revealed that awareness of CC and with the support from all partners particularly the husbands, screening for CC would be sought, and necessary interventions sought.

### **1.3 Purpose of the Study**

The purpose of the study was to establish the awareness of, screening and role of men in prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya.

### **1.4 Objectives of the Study**

The objectives of the study were:

- i) To establish the level of awareness of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya.
- ii) To determine the level of awareness of cervical cancer screening by tea farm workers of Nandi Hills Division in Nandi County, Kenya.
- iii) To assess the role of men in the prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya
- iv) Determine the relationships between awareness of cervical cancer screening, role of men and prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya

### **1.5 Research questions**

- i) What is the level of awareness of cervical cancer among tea farm workers of Nandi Hills in Division in Nandi County, Kenya?
- ii) What is the level of awareness of cervical cancer screening by tea farm workers of Nandi Hills Division in Nandi County, Kenya?
- iii) What is the role of men in the prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya?
- iv) What is the relationship between awareness of cervical cancer screening, role of men and prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya?



## **1.6 Study Significance**

This study would be significant to tea farm workers, the Ministry of Health in Kenya, Non-Governmental Organization (NGOs) supporting prevention of CC, and scholars with interest in cancerous diseases. Recommendations based upon levels of awareness of CC, awareness of CC screening, and the role of men in prevention of CC would help families within tea farms to adopt appropriate perception towards prevention of CC. Equally, the Ministry of Health, having known the level of CC awareness, awareness of CC screening and the role of men towards prevention of CC, would be able to take the necessary initiatives to enhance CC prevention within tea farms. Supportive NGOs, on the other hand, would be in a better position to roll out informed programs for CC preventions based upon recommendations from the study. Finally, recommendations for further research provided in this study would open up windows for further studies in the field of CC for scholars.

## **1.7 Scope of the Study**

This study covered level of awareness of CC, awareness of CC screening, and the role of men in prevention of CC. Participants were women aged 15 years and above who were not undergoing CC treatment. The study area was tea farms in Nandi Hills Division.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This section reviews literature based on the study objectives. The review covers global, continental, and regional studies focusing on the phenomenon being researched upon.

#### 2.2 Awareness of Cervical Cancer

Knowledge and awareness with regard to any disease is an essential step in initiation of therapeutical steps. However, most studies covering awareness of cervical cancer (CC) have provided mixed results in connection to its effect on CC prevention among women. Moreover, limited focus has been made on women in tea farms with regard to CC.

In a study by Siddharthar, *et al.*, (2014) assessed the knowledge, awareness, and prevention of cervical cancer among women attending a tertiary care hospital in Puducherry, India. This cross sectional study was conducted on a sample of 399 attending gynaecology department. Findings revealed that less than half of the study population was aware of cervical cancer and only one-third of the women had knowledge about its risk factors and symptoms. Smoking cigarettes, long term use of oral contraceptive pill, poor genital hygiene, having a sexual partner with multiple partners were considered the major risk factors for cervical cancer. Of the symptoms of cervical cancer, bleeding during or after sex, vaginal bleeding after menopause, pain during sex and persistent low back pain were considered more frequently by the women. Only a few women considered themselves at risk of cervical cancer. Still, little is disclosed as to whether awareness or lack of it leads to CC prevention. Moreover, the situation among tea farm workers remains unknown.

In another study, Ramathuba, *et al.*, (2016) assessed the knowledge, attitudes and practices regarding cervical cancer prevention among rural women in Vhembe District in Limpopo Province, Republic of South Africa. A quantitative descriptive approach was adopted on a sample of women aged 30 years and older. Findings revealed that women lacked knowledge about cervical cancer and preventive methods, and displayed positive attitudes to the use of services if made available as health workers did not adequately inform them about the availability of the services.

In Malaysia, Baskaran,*et al.*,(2013) sought to determine the perceived susceptibility to cervical cancer, as well as the benefits of, and barriers to, cervical cancer screening among women. A cross-sectional survey was conducted among 369 women attending an outpatient center. The majority of the participants showed good level of perception of their susceptibility to cervical cancer. Significant associations were observed between age and perceived susceptibility; between employment status as well as ethnicity and perceived benefits; and between education and perceived barriers to cervical cancer screening. Still, this study provides little information regarding how such awareness influences prevention of CC. Moreover, the state of similar knowledge among tea farm workers remains unknown.

In Africa, Olumide,*et al.*,(2014) carried out a study to assess the knowledge and perception of rural Nigerian women about, as well as the predictors, of cervical cancer and screening. A survey with interviewer administered questionnaires was conducted on 800 Nigerian women recruited from households in Ogun State by a multi-staged sampling method. Participants were aged 25 to 64 years. Proportion of respondents with very poor knowledge and poor perception about cervical cancer were high. Hence, it is not surprising that the uptake of cervical screening is abysmally low (3.9%). Age, knowledge and perception about cervical cancer were related to uptake of cervical screening; however, only perception about cervical cancer was found to predict the uptake of cervical screening. But the extent to which such low level of knowledge has contributed to prevention of CC is not provided by Olumide, *et al.*,(2014). Equally, little is known with regard to similar situation in tea farms.

Sudenga,*et al.*,(2013) used a cross sectional survey on women seeking reproductive health services in Kisumu, Kenya to assess their perceived risk of cervical cancer and risk factors influencing cervical cancer screening uptake. Results revealed that while 91% of the surveyed women had heard of cancer, only 29% of the 388 surveyed women had previously heard of cervical cancer. Few women (6%) had ever been screened for cervical cancer and cited barriers such as fear, time, and lacking knowledge about cervical cancer. Nearly all previously screened women (92%) believed that cervical cancer was curable if detected early, and that screening should be conducted annually (86%). However, such a survey needs to be conducted among workers within tea firms to assess their perception of risks of CC.

### 2.3 Awareness of Cervical Cancer Screening

Detection of HPV is the first step essential for initiation of cancer treatment. However, women need to be aware of places where such screening takes place, different methods of screening, and the period or age at which screening need to be done (Kei *et al.*, 2016). However, although there is limited information regarding awareness of CC screening among women in tea farms, studies have not comprehensively linked awareness of screening with prevention of CC. In Sweden, Elfström (2015) investigated the long-term effectiveness of different screening strategies and the long-term risk associated with HPV infections, the organization and quality of existing screening programs, and the effectiveness of alternative vaccination strategies. This was a longitudinal study involving evaluation of different screening methods and HPV vaccinations through 6 incremental levels taken from 6 different studies. Taken together, the results of these studies provided evidence for the incremental optimization of cervical cancer prevention programs. Still, some effort needed to be made regarding similar studies among workers in tea farms.

In another study, Marlow, *et al.*, (2015) explored socio-demographic and attitudinal correlates of cervical screening non-attendance among BAME women from Black, Asian and Minority Ethnic (BAME) backgrounds are less likely to attend cervical screening than White British women (n=720). This study explored socio-demographic and attitudinal correlates of cervical screening non-attendance among BAME women. BAME women were more likely to be non-attenders than white British women (71% vs 12%) and fell into two groups: the disengaged and the overdue. Migrating to the United Kingdom, speaking a language other than English and low education level were associated with being disengaged. Being overdue was associated with older age. Three attitudinal barriers were associated with being overdue for screening among BAME women: low perceived risk of cervical cancer due to sexual inactivity, belief that screening is unnecessary without symptoms and difficulty finding an appointment that fits in with other commitments. But similar to other preceding studies, focus upon tea farm workers is not made.

Ncube, *et al.*, (2015) carried out a study to identify factors associated with Jamaican women's decisions to screen for cervical cancer. This was a cross sectional descriptive study on a sample of 403 women aged 19 years and over from Portland, Jamaica. Of the 403 women interviewed, 66% had a Papanicolaou (Pap) smear and only 16% had a Pap test within the past year. Significant predictors of uptake of screening were being married, age, parity, discussing cancer

with health provider, perception of consequences of not having a Pap smear, and knowing a person with cervical cancer. Women who did not know where to go for a Pap smear were 85% less likely to have been screened.

In Africa, Balogun,*et al.*,(2012) conducted a study on the awareness of cervical cancer, attitude towards the disease and screening practice of women residing in two urban slums of Lagos, Nigeria. Only 10 (4.2%) women in this study were aware of cervical cancer and none of them believed they were at risk of developing the disease. Most (73.3%) were willing to undergo a cervical cancer screening test. Age, education and previous history of vaginal examination were positively associated with willingness to undergo screening. The respondents had a high prevalence of major risk factors for cervical cancer such as early age at sexual debut, multiple sexual partners and male partner with other female partners. Away from urban slums, workers in tea farms need also to be involved in similar studies.

Hoque and Hoque (2009) conducted a descriptive cross-sectional study to assess the knowledge of the risk factors associated with, and detection methods of cervical cancer among female undergraduate students at Mangosuthu University of Technology. A total of 389 students were selected by stratified random sampling techniques. Results indicated that less than half (42.9%) of the participants had heard of cervical cancer and of these, 26 (15.6%) did not know any risk factors for cervical cancer, while 96 (58.6%) of 164 participants who knew of risk factors, did not know that cervical cancer is preventable. One-hundred and sixty-three (41.9%) participants had heard about the Pap smear test. That the Pap smear test is used for detection or prevention of cervical cancer, was known to 62 (38%) of the respondents. Only 16 (9.8%) participants had had a Pap smear test. Among those who knew about the Pap smear test (n=136), 86 respondents did not have the test done mainly because of personal factors such as fear of the procedure, cultural or religious reasons, and were not ill (61.1%). But the contribution of such tests on prevention of CC is not indicated by Hoque and Hoque (2009). Equally, a similar study needs to be done in other areas like among workers in tea farms where incidence rates of CC are high.

Ebu, *et al.*,(2015) sought to assess the level of knowledge of women about Pap smear tests, their practices regarding Pap smear tests, and the barriers they face to Pap smear tests in Elmina,

Ghana. A cross-sectional study was conducted with 392 randomly selected sexually active females aged 10–74 years using structured interview questions. The results revealed that 68.4% had never heard about cervical cancer, 93.6% had no knowledge on the risk factors, nine (2.3%) reported multiple sexual partners and being sexually active as risk factors, and 92% did not know about the prevention and treatment of cervical cancer. The majority (97.7%) had never heard of the Pap smear test. Only three (0.8%) women out of 392 had had a Pap smear test. Reasons for seeking a Pap smear test included referral, fear of cervical cancer, and radio campaigns. A significant association was found between institutional and personal barriers and having a Pap smear test.

Mupepi, *et al.*, (2011) investigated knowledge, attitude, and demographic factors influencing cervical cancer screening behaviour of Zimbabwean women. The study sample consisted of randomly selected, sexually active, rural females between 12 and 84 years of age. Five hundred fourteen females responded to an individually administered questionnaire. Of the 514 participants, 91% had never had cervical screening and 81% had no previous knowledge of cervical screening tests; 80% of the group expressed positive beliefs about cervical screening tests after an educational intervention. Females who were financially independent were 6.61% more likely to access cervical screening compared with those who were dependent on their husbands. Females in mining villages were 4.47% more likely to access cervical screening than those in traditional rural reserve villages. Females in resettlement villages were 20% less likely to access cervical screening than those in traditional rural reserve villages.

Atuhaire (2013) explored the challenges to uptake of cervical cancer screening among women accessing maternal and child health services at Nsambya Hospital in Kampala, Uganda. An exploratory and descriptive qualitative study was adopted. Purposive sampling of 25 women accessing maternal and child health care services was applied. Qualitative data was collected using semi-structured interviews and thematic content analysis was done. Three broad themes emerged from the study namely: knowledge and awareness about cervical cancer; barriers; and facilitating factors to cervical cancer screening. Generally, knowledge and awareness about cervical cancer was very low although the risk perception was very high. Barriers to cervical cancer screening included fear of positive results, absence of pain, busy work schedules, unfriendly screening procedures, and long waiting times at the health services. Availability of

free screening services, availability and affordability of cervical cancer drugs and integrated services were reported as facilitating factors.

Twinomujuni, *et al.*, (2015) sought to identify factors associated with intention to screen for cervical cancer among women of reproductive age in Masaka Uganda using the attitude, social influence and self-efficacy (ASE) model. A descriptive community based survey was conducted among 416 women. A semi-structured interviewer administered questionnaire was used to collect data. Unadjusted and adjusted prevalence ratios (PR) were computed using a generalized logistic model with Poisson family and a log link using STATA 12. It was found that only 7% of the respondents had ever screened for cervical cancer although a higher proportion (63%) reported intention to screen for cervical cancer. The intention to screen for cervical cancer was higher among those who said they were at risk of developing cervical cancer, those who said they would refer other women for screening and higher among those who were unafraid of being diagnosed with cervical cancer. Those who reported discussions on cervical cancer with health care providers, those living with a sexual partner, and those who were formally employed more frequently reported intention to screen for cervical cancer.

Modibbo, *et al.*, (2016) explored the barriers to cervical cancer screening, focusing on religious and cultural factors, in order to inform group-specific interventions that may improve uptake of cervical cancer screening programmes. Four focus group discussions (FGDs) were conducted among Muslim and Christian women in two hospitals, one in the South West and the other in the North Central region of Nigeria. Participants were 27 Christian and 22 Muslim women over the age of 18, with no diagnosis of cancer. Results revealed that most participants in the focus group discussions had heard about cervical cancer except Muslim women in the South Western region who had never heard about cervical cancer. Participants believed that wizardry, multiple sexual partners and inserting herbs into the vagina cause cervical cancer. Only one participant knew about the human papillomavirus. Among the Christian women, the majority of respondents had heard about cervical cancer screening and believed that it could be used to prevent cervical cancer. Participants mentioned religious and cultural obligations of modesty, gender of healthcare providers, fear of disclosure of results, fear of nosocomial infections, lack of awareness, discrimination at hospitals, and need for spousal approval as barriers to uptake of screening. These barriers varied by religion across the geographical regions.

Lyimo and Beran (2012) assessed demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district of Tanzania. A cross sectional study was conducted with a sample of 354 women aged 18 to 69 years residing in Moshi Rural District. A multistage sampling technique was used to randomly select eligible women. A one-hour interview was conducted with each woman in her home. It revealed that less than one quarter (22.6%) of the participants had obtained cervical cancer screening. The following characteristics, when examined separately in relation to the uptake of cervical cancer screening service, were significant: husband approval of cervical cancer screening, women's level of education, women's knowledge of cervical cancer and its prevention, women's concerns about embarrassment and pain of screening, women's preference for the sex of health provider, and women's awareness of and distance to cervical cancer screening services. When examined simultaneously in a logistic regression, it was found that only knowledge of cervical cancer and its prevention (OR = 8.90, 95%CI = 2.14-16.03) and distance to the facility which provides cervical cancer screening (OR = 3.98, 95%CI = 0.18-5.10) were significantly associated with screening uptake.

In Kenya, Ombech, *et al.*, (2012) did a study to find out the awareness about cervical cancer, knowledge of risk factors and practice of Pap smear testing among female primary school teachers in Kasarani division. A cross-sectional study design was adopted. Systematic random sampling was used to obtain the required sample size of 384 respondents. The study was conducted between May and July 2010. Data analysis was conducted using SPSS and Excel programmes. The study findings revealed that 87% of the women were aware about cervical cancer, while 75% knew about the Pap smear test. Among them only 39% knew that HPV infection was a risk factor for developing cervical cancer while only 41% had ever had a Pap smear test done. There was a crude association between awareness of cervical cancer risk factors and practice of Pap smear test with 1.04 increasing odds of having a Pap smear if women were aware of the risk factors.

Kei, *et al.*, (2016) assessed the knowledge, practice and barriers towards screening for premalignant cervical lesions among women aged 15 years and above years in Kisii Town of Kisii County, Kenya. A descriptive cross-sectional study design was used and the sample population was selected among women in Kisii town. The study used a sample of 151



respondents from whom data was collected using structured questionnaire. Results revealed that knowledge on cervical cancer and screening was very low among women in Kisii Town, because 20.5% knew about vaginal bleeding and 15% knew about having multiple sexual partners as a risk factor. There is relationship between the level of education and belief on the cure for cancer ( $P = 0.000$ ), those who are more educated believed that cervical cancer can be cured at early stages while those with less education believed that the cancer cannot be cured.

It is thus clear from the reviewed studies that awareness of screening among tea farms workers has received limited focus. Researchers have dwelt on women in urban set ups, professionals working in colleges and universities, as well as in some rural areas.

## **2.4 Role of Men in Cervical Cancer Prevention**

Participation of men in the prevention of CC is important in ensuring that female spouses are supported both morally and financially in prevention of CC. Nonetheless, information regarding role of men in cervical cancer prevention among tea farm workers has received minimum attention of researchers. This is evident in a number of studies conducted across the globe. Treviño, *et al.*,(2011) sought to determine, through a community based breast and cervical cancer intervention program, the impact of Latino males on Latinas and their cancer screening behaviours in the USA. Data was collected through questionnaire from 163 Latino males recruited throughout rural Arkansas and four New York City boroughs. Results from this study suggest Latino men have little knowledge about breast or cervical cancer screening and are unfamiliar with their partners' screening histories. Male participants were also less likely to complete program assessment forms (pre, post, demographic questionnaires) and more likely to commit response errors (i.e. multiple answers, illegible responses).

A study by Gerend and Barley (2009) assessed whether informing men about the benefits of male HPV vaccination for their female sexual partner(s) boosted interest in the HPV vaccine beyond informing them about the benefits to men alone. Predictors of HPV vaccine acceptability were also identified. Heterosexual male college students (n = 356) were randomly assigned to receive a self-protection versus a self-protection and partner protection message about HPV and the quadric-valent HPV vaccine. Results revealed that men reported moderate interest in the HPV vaccine; vaccine acceptability did not differ by experimental condition. A multivariate regression model identified several independent predictors of HPV vaccine acceptability including sexual activity, perceived susceptibility to HPV, perceived benefits of the vaccine, perceived hassle and cost of vaccination, self-efficacy for vaccination, and perceived norms for vaccination

Another study by Pitts, *et al.*,(2009) explored Singaporean men's knowledge of cervical cancer and human papilloma virus (HPV) and their attitudes towards HPV vaccines using a representative sample of 930 men who were found to have moderate knowledge of cervical cancer but poor knowledge and awareness of HPV. Although these men showed strong support for HPV vaccination, overall findings highlight the importance of including men in education

campaigns that aim to decrease the incidence of cervical and other HPV-related cancers and to increase the uptake of HPV vaccination

Asuzu, *et al.*, (2014) assessed husbands' cervical cancer related knowledge, attitude and practices encouraging their wives to screen for cervical cancer in Ibadan, Nigeria. Descriptive research design on a randomly selected sample was used. Data was collected by use of questionnaire. Descriptive statistics indicated that 70% of the husbands had good cervical cancer related knowledge. On attitude to screening, 55.1% of the husbands will encourage their wives to screen for cervical cancer if they knew a test that can detect cervical cancer early. Husbands' behaviour encouraging wives to screen indicates that wives of 55.2% of the husbands have not gone for pap smear test, 89.1% of husbands did not know when their wives should go for pap smear test and 80% did not remind their wives to go for pap smear test. Correlation analysis showed that husbands' cervical cancer related knowledge had a significant logistic relationship with husbands' practices encouraging wives to go for cervical cancer screening while their attitude towards screening did not. It was concluded that there is need to educate husbands about cervical cancer and the need for their wives to screen before symptoms are noticed.

Rosser, *et al.*, (2014) examined men's knowledge and attitude about cervical cancer screening in Kenya. An oral survey was administered on 110 men in Western Kenya. Men who had female partners eligible for cervical cancerscreening were recruited from government health facilities where screening was offered free of charge. It was found that specific knowledge about cervical cancer risk factors, prevention, and treatment was low. Only half of the men perceived their partners to be at risk for cervical cancer, and many reported that a positive screen would be emotionally upsetting. Nevertheless, all participants said they would encourage their partners to get screened.

The reviewed studies under role of men in prevention of CC have tended to concentrate in areas other than tea farms. Workers in tea farms like their counterparts in other plantations seem to have been overlooked in as far as research on role of men in CC prevention is concerned. This study was therefore intended to fill this gap.

## **2.5 Relationship between awareness, screening, role of men, and prevention of Cervical Cancer Prevention**

Although several researchers have proved through empirical studies that awareness, screening, and role of men influence prevention of CC, there is limited information regarding this within tea farms. Treviño, *et al.*, (2011) sought to determine, through a community based breast and cervical cancer intervention program, the impact of Latino males on Latinas and their cancer screening behaviours in the USA. Data was collected through questionnaire from 163 Latino males recruited throughout rural Arkansas and four New York City boroughs. Results from this study suggest that Latino men have little knowledge about breast or cervical cancer screening and are unfamiliar with their partners' screening histories. Male participants were also less likely to complete program assessment forms (pre, post, demographic questionnaires) and more likely to commit response errors (i.e. multiple answers, illegible responses).

Naveen, *et al.*, (2014) used coffee plantation workers in India to assess the prevalence of cervical dysplasia and reproductive tract infections (RTI) and its associated ethological factors among women aged 40 years and above. It was a cross sectional study conducted among female plantation workers in India. It revealed that a total of 141 women aged 40 years and above were screened for cervical dysplasia and reproductive tract infections. The prevalence of cervical dysplasia on Pap smear was seven percent and that of RTI was 12.05%. There was no statistically significant association between cervical dysplasia and RTI with socio demographic variables like age, education, per capita in-come, age at marriage, age at first pregnancy or number of children.

Umar (2014) assessed the knowledge, preventive attitude, and perceived barriers to screening of cervical cancer among female students of reproductive aged (16 – 49), in four selected tertiary institutions in Bauchi metropolis. Convenient cross sectional survey research design was adopted in this study through the use of questionnaire developed by the researcher. Overall, the results obtained from the 300 respondents suggest that with awareness alone, the participants will be highly receptive to free cervical cancer screening (92%). Women with knowledge of the preventive attitudes and purpose for screening were more likely to identify themselves as at risk for cervical cancer

Kloku (2014) did a cross-sectional study with the aim of assessing the awareness of cervical cancer and its prevention amongst female health professionals in the Winneba Municipality in Ghana. A sample of 204 respondents was selected by a multi stage cluster sampling technique. The awareness of cervical cancer among the female health professionals was generally high (99%), with their predominant source of information being school (37%) followed by the internet (22%). Knowledge about the signs and symptoms of the disease were insufficient as about half of the respondents did not know whether persistent lower back pain, bleeding from vagina, persistent pelvic pain and unexplained weight loss were signs and symptoms of the disease or not. Also, knowledge about the risk factors was inadequate as some of the respondents were not sure whether smoking any form of cigarettes (65%), infection with Chlamydia (51%), having a sexual partner who is not circumcised (29%), having many children (65%) and not going for regular pap smear (50%) increased one's risk of developing cervical cancer or not.

Akintayo *et al.*, (2013) assessed the knowledge of cervical cancer, its risk factors and prevention among young women in Ekiti State of Nigeria. This was a descriptive cross-sectional questionnaire based survey of young women aged 15-24 years in randomly selected local government areas in Ekiti State. Among the respondents, 69.4% were sexually active with only a quarter consistently using condom. Only 54.3% had heard of cervical cancer, 2.9% knew the risk factors and a quarter knew no risk factor for cervical cancer. A tenth of the respondents knew about human papilloma virus (HPV) and a similar number knew about the HPV vaccine. Only 9% have heard about Pap smear while 1.4% has had Pap smear at least once.

A study by Wright, *et al.*, (2014) assessed the perception and preventive practices on cervical cancer by residents of an urban neighborhood of Lagos, Nigeria. A descriptive cross-sectional study was conducted on 317 consecutively recruited consenting participants at a medical outreach using a pretested, interviewer-administered, semi-structured questionnaire. Data analysis was done using SPSS version 19. Findings revealed that about 37.2% of respondents had heard about cervical cancer with 84.5% of the participants willing to attend a cervical cancer health education program. Among the female respondents, 4.1% had received the HPV vaccine, while 5.1% had undergone a Pap test. Awareness about cervical cancer was significantly higher with increasing age in the total population.

Ochodo (2010) explored the strategies appropriate for CC prevention among HIV positive women in Kenya. This study involved review of previous studies as well as health records from government archives and NGOs data bases. It revealed that managing pre-cancer through treat and test option is the most cost effective strategy in Kenya. While special focus was made upon HIV positive women, similar approach need also to be given to tea farm workers.

It is therefore clear that there are limited information based upon empirical research covering workers in tea farms with regard to level of awareness of, awareness of screening, and the role of men in prevention of CC. Given that incidence of CC among women in these areas (tea farms), it was essential to carry out such a study.

## **2.6 Conceptual Framework**

The relationship between awareness of cervical cancer, awareness of cervical cancer screening, role of men, and prevention of cervical cancer can be presented in a diagram called conceptual framework. It is a framework which shows how independent and dependent variables relate. Based upon WHO guidance note (2013), prevention of cervical cancer depends on awareness of the disease, awareness and uptake of cervical cancer screening, and involvement of men in aiding cervical cancer screening. Therefore the independent variables of the study were awareness of cervical cancer, awareness of cervical cancer screening, and the role of men. The dependent variable was prevention of cervical cancer. Figure 2.1 presents the conceptual framework of the study.

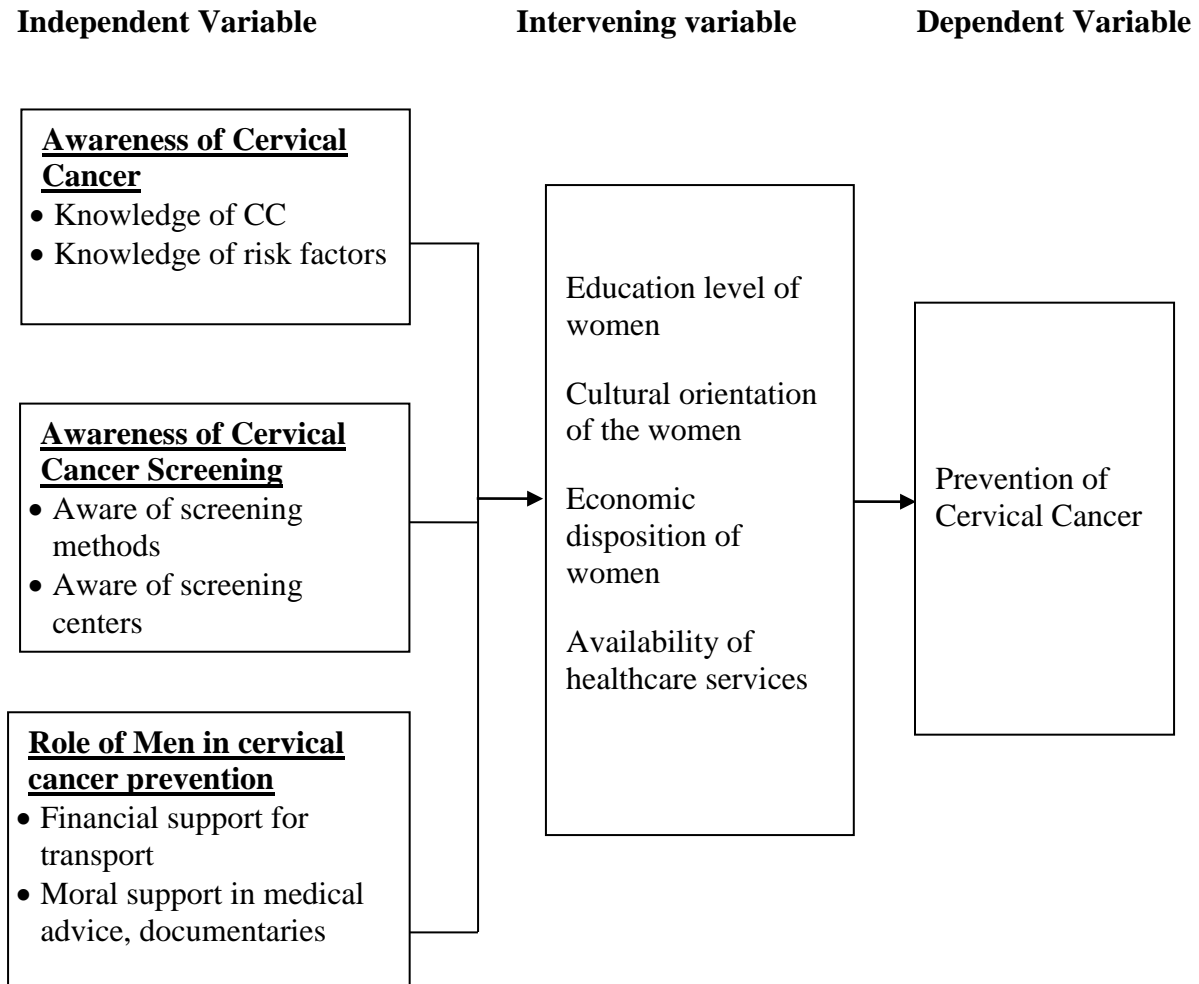


Figure 2.1: Conceptual framework for the relationship awareness of Cervical Cancer, Awareness of Screening, Role of men, and Prevention of Cervical Cancer  
 (Source: Own, 2015)

## **CHAPTER THREE**

### **STUDY METHODOLOGY**

#### **3.1 Research Design**

A cross-sectional study design was conducted to establish the level of awareness of cervical cancer; to determine the level of awareness of cervical cancer screening; to assess the role of men in the prevention of cervical cancer; and to determine the relationships between awareness of cervical cancer screening, role of men and prevention of cervical cancer among tea farm workers of Nandi Hills Division in Nandi County, Kenya.

#### **3.2 Study Area**

The study was carried out in Nandi Hills Division of the Nandi East District. It is one of the five districts found in the Nandi County, in the Western part of Kenya. It lies on 0° 70' 0" North, 35° 11' 0" East (figure 3.1) and approximately 350kms North West of Nairobi, Kenya's capital. It borders Nandi South to West, Nandi Central to the North, Uasin Gishu District to the East, Tindiret district to the South East and Nyando District to the South. Figure 3.1 presents the map of the study area.



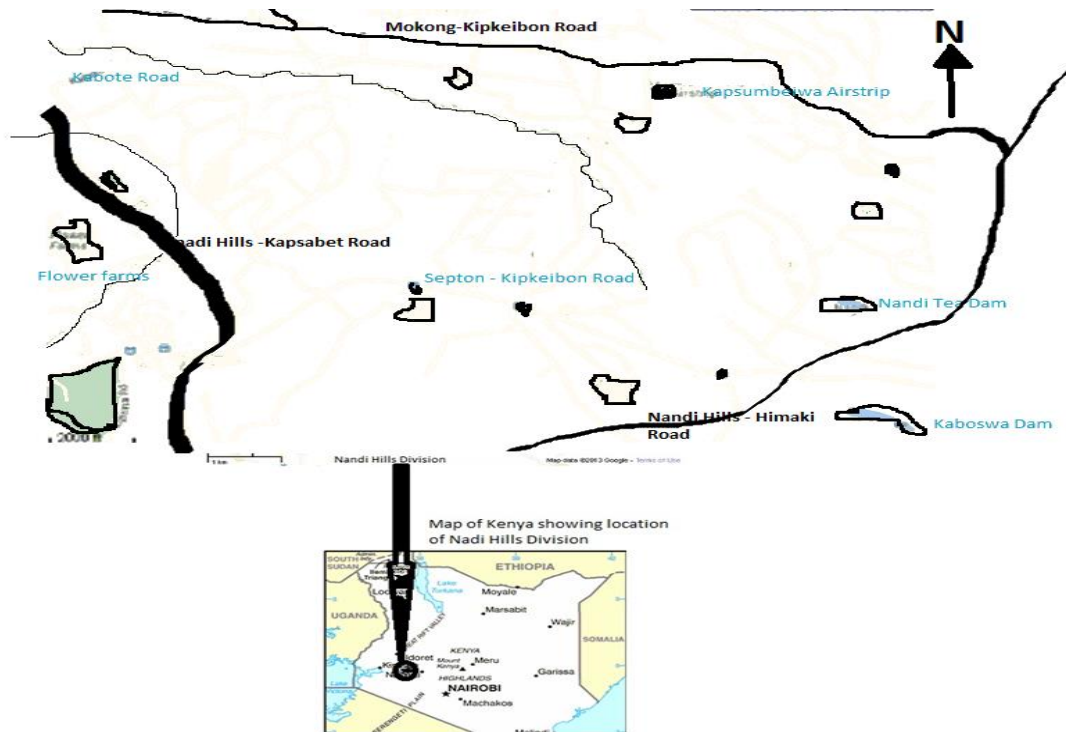


Figure 3.1: Map of the Study Area



Figure 3.2 Photographic View of the Tea farms

(Source: Field Data, 2015)

Nandi Hills Division in Nandi East District is one of the primary tea growing areas in the country. It has area coverage of 390.3 Km<sup>2</sup> with 15 locations and a population density of 77,514 people. The area has 17 estates which grow, harvest, process, and export tea. The rural people

also grow tea as their main cash crop with supplements on maize and dairy farming. The poverty rate in the division stands at 47.4% and the majority of the poor are casual workers in the tea farms. The division is cosmopolitan due to availability of employment in the tea estates and the most common tribes are: Kalenjin, Luhya, Luo, Kisii, Kikuyu, Somali, Maasai and Turkana. Tables 3.1 and 3.2 present other characteristics of the study area.

Table 3.1: Distribution of Health Services

Description	Hospital	Dispensaries
Health facilities	1	25
Doctors	6	1
Clinical officers	15	10
Public health officers	2	14
Nurses	43	26
Locations	15	
Sub-locations	48	

(Source: Nandi Hills Sub County Public Health records; 2014)

The division has 25 dispensaries and one district hospital, Nandi Hills District hospital which is an 87-bed capacity general hospital with 6 doctors. There is no gynecologist in Nandi Hills District Hospital and patients are referred to Kapsabet District Hospital for Pap smear tests. There is only one nurse specialized in Comprehensive Reproductive Health (CRH), and handles VIL and VIA cervical cancer screening services at the hospital. The common and most prevalent diseases are malaria, upper respiratory-tract infections, diarrhea, intestinal worms, skin diseases and HIV and AIDS with a prevalence rate of 12.9% as shown in the table 3.2. The Doctor/Population ratio currently stands at 1: 53,333 while the Nurse/Patient ratio is at 1: 284. The average distance to the nearest health facility is about 7-15 Km.

Table 3.2: Health Indicators of the Area

Indicator	Rate
Crude birth rate	44.3/1,000
Crude death rate	10.6/1,000
HIV prevalence rate	6.3%
Immunization coverage	85%
Doctor/patient ratio	1:80,000
Fertility rate	4.7
Life expectancy (2012)	
Male	56.6
Female	63.7

(Source: Ministry of Health, Nandi County; 2015)

Crude birth rate is the total number of births of people in 1,000. Crude birth rate of more than 30 is considered high while rates below 18 considered low. Thus the study area has a high crude birth rate. Crude death rate is the measure of deaths in 1,000 people in a given population. Crude death rate below 10 is considered low while rate above 20 is high and therefore the study area has a low crude death rate.

### 3.3 Target Population

The target population comprised all men and women who were working in tea farms, were not undergoing cervical cancer treatment, and had attained 15 years and above. The age category was chosen because it is the age at which sexual debut commences most among women, and it is this age that HPV is often contracted.

### 3.4 Sample Size

The following Fisher *et al.*, (1983) formula was used for calculation of the sample size.

$$n = \frac{\left( \frac{P[1-P]}{A^2 + \frac{P[1-P]}{N}} \right)}{R}$$

Where:

n = sample size required

N = number of people in the total population under study in the area which is 77,514 (National Census, 2009).

P = 0.5 which was the estimated variance of cervical cancer awareness in population on the assumption that approximately 50% of the population had correct knowledge regarding cervical cancer for no previous regional studies have been conducted (Adanuet *al.*, 2010).

A = Precision desired expressed as a decimal 0.05 or 5%

Z = Confidence level 1.96 for 95% confidence

R = Estimated Response rate as a decimal of 0.9 for expectation of 90% response

Thus solving for the above:

$$n = \frac{\left( \frac{0.5[1-0.5]}{\frac{0.05^2}{1.96^2} + \frac{0.5[1-0.5]}{77,514}} \right)}{0.9}$$

$$n = \frac{\left( \frac{0.25}{0.000653995} \right)}{0.9}$$

$$n = 424.7398$$

$$n = 425$$

Therefore, 425 people were randomly sampled from the entire population of 77, 514 to form the sample size of the study.

### 3.5 Data collection tools

A standardized Questionnaire with close-ended questions was administered to the respondents and was designed based on the study objectives in a language that they could understand fully. The tool was divided into seven sections i.e. general data about division, socio-demographic factors, knowledge, awareness towards cervical cancer and its screening, socio-cultural factors, economic factors, health facility factors, and the role of men as shown in Appendix II. The questionnaire was pre-tested at Nandi Tea Factory workers before the actual data collection to check the validity, consistency, completeness, time taken and familiarity. This

site has conditions similar to the actual study area in relation to study participants and geographical factors.

### **3.6 Validity and Reliability of Research instruments**

According to Gall, *et al.*, (2007), a researcher should carry out a thorough pilot test of the research instruments before using them in a study. The manner in which a question is formulated can result in inaccurate responses (Kombo & Tromp 2006); thus wrong data can be collected. It is therefore important to carry out validity and reliability test for the researcher to measure what is meant to be measured by gaining consistent results if retested. Validity is defined as the accuracy and meaningfulness of inferences, which are based on the research results (Golafsheni, 2005).

To ensure that the information that was collected from the field is accurate and reliable, there was need to determine content validity of the instruments. According to Kombo and Tromp (2006) reliability is a measure of how consistent the results from a test are. To achieve this, the study used a test retest technique to establish reliability of the instruments prior to the field observation. The procedure involved pilot testing the tool on a randomly selected 42 respondents in Nandi Tea Estate at an interval of two weeks which were not part of the sample for the study. Cronbach's Alpha coefficient of 0.7 and above was attained for all the 4 variables. The results were used to revise the instruments before they were put to use in the actual study.

### **3.7 Data Collection Procedures**

The researcher first sought permission from the Ministry of Health. He then proceeded to Nandi Hills Divisions Commissioner's office and obtained permission to visit the sampled areas. Once permission was granted, the researcher visited each of the sampled tea farm workers in their area of work and residence for data collection. They were randomly selected and only those willing were recruited into the study.

### **3.8 Data Analysis**

Collected data was analyzed by applying descriptive and inferential statistical measures. Descriptive statistics such as percentages, mean, and standard deviation were used to analyze awareness of cervical cancer, awareness of cervical cancer screening, and the role of men in

prevention of cervical cancer. Regression analysis technique was used to determine if there is significant relationship between awareness of cervical cancer, screening awareness, the role of men and prevention of cervical cancer. Quantitative data was analyzed using descriptive statistics by use of frequency counts, percentages and means. The process of data analysis required the use of a computer spreadsheet, and for this reason the Statistical Package for Social Sciences (SPSS) was used.

### **3.9 Ethical Considerations**

Informed consent was sought from the school authorities, estate management and parents as shown in Appendix II and III. At the community levels permission was obtained from village heads/community leaders. Privacy of the respondents and confidentiality of their data was given a greater priority by concealing their names by use of codes in the research tool.

## CHAPTER FOUR

### RESULTS

#### 4.1 Introduction

This chapter presents the results and discussions of the findings of the study. The results are presented and discussed along three headings: awareness of cervical cancer; awareness of cervical cancer screening; the role of men in cervical cancer prevention, and the relationship between awareness and prevention of cervical cancer. The study however presents demographic information of the sampled respondents first in paragraph 4.2.

#### 4.2 Demographic Information of Study Respondents

The first part of the study questionnaire enquired about demographic information of the sampled respondents. This was assessed under the following categories:

##### 4.2.1 Age of respondents

The researcher first enquired about ages of the sampled respondents. Table 4.1 presents age distribution of the respondents.

Table 4.1: Distribution of Respondents by Age

Age	Frequency	Percent
15-19	58	13.6
20-24	84	19.8
25-29	122	28.7
30-34	69	16.2
35-39	51	12.0
40-44	20	4.7
45-49	15	3.5
50-54	6	1.4
Total	425	100.0

Table 4.1 illustrates that most (28.7%) of the study respondents are aged between 25 and 29 years. Additionally, 19.8% of the respondents were of between 20 and 24 years of age; 16.2% being between 30 and 34 years of age; 13.6% of the respondents being between 15 and 19 years old; 12% of the sampled respondents were between 35 and 39 years old. Conversely, only 9.6% of the study respondents were 40 years and above. This implies that the distribution of sexually active population is generally higher in this area; hence the importance of awareness of

reproductive health issues like cervical cancer cannot be gainsaid in such a region. The other biographical characteristic assessed was gender of respondents.

#### **4.2.2 Gender of Respondents**

Another part of the study instrument assessed the gender of the sampled respondents. Table 4.2 presents the distribution of respondents by gender.

Table 4.2: Distribution of Respondents by Gender

	Frequency	Percent
Males	239	56.2
Females	186	43.8
Total	425	100.0

Table 4.2 indicates that majority (56.2%) of the study respondents were males, while 43.8% were females. This suggests that males are the dominant gender in tea estates in Kenya, probably because of the physical strength required in plantation works. The study also enquired about places of residence of the respondents.

#### **4.2.3 Residential place of Respondents**

Places of residence of the sampled respondents were also enquired by the researcher. Table 4.3 presents distribution of respondents by place of residence.

Table 4.3: Distribution of respondents by place of residence

	Frequency	Percent
Rural Area	166	39.1
Tea Estate	244	57.4
Nandi Hills town	15	3.5
Total	425	100.0

It is indicated in Table 4.3 that majority (57.4%) of the sampled respondents resided in the tea estate, while 39.1% were living in rural areas. The remaining 3.5% of the respondents lived in Nandi Hills town. Being residents of one estate, it is suggestive that the respondents share common social factors that make them homogenous. This therefore implies that information flow may not be interfered with much by factors emanating from the environment.



#### **4.2.4 Duration of stay in the place of Residence**

The researcher also requested the sampled respondents to state the number of years they had stayed in their places of residence. Table 4.4 presents distribution by duration in places of residence.

Table 4.4: Distribution of respondents by duration in place of residence

	Frequency	Percent
Less than 3 months	24	5.6
Four to six months	36	8.5
Seven to nine months	16	3.8
More than nine months	349	82.1
Total	425	100.0

Table 4.4 indicates that majority (82.1%) of the sampled respondents have lived in their places of residence for more than 9 months, while 8.5% of them had stayed for between four and six months in the places of residence. Additionally, 5.6% and 3.8% of the respondents had stayed for less than 3 months and between seven and nine months respectively. The length of stay in one residential location for a longer period observed in this section suggests that the respondents have a better grasp of factors that might leverage awareness of cervical cancer, screening, as well as the role of men towards cervical cancer prevention.

#### **4.2.5 Distribution of respondents by marital status**

The other part of the study instruments assessed the marital status of the sampled respondents. Table 4.5 presents the distribution by marital status of the respondents.

Table 4.5: Distribution of respondents by marital status

Marital Status	Frequency	Percent
Single	169	39.8
Married	240	56.5
Widow	9	2.1
Widower	1	.2
Divorcee	6	1.4
Total	425	100.0

Table 4.5 illustrates that majority (56.5%) of the sampled respondents were married, while 39.8% of them were single. Equally, 2.3% and 1.4% of the respondents were widowed and divorced respectively. This implies that the sampled respondents were in a position to offer their opinion with regard to issues like role of men in cervical cancer prevention.

Another area that the study instrument assessed was whether or not the sampled respondents were staying with their marital partners.

#### 4.2.6 Respondents by staying with partners

Respondents were also asked to state whether they stay with their marital partners in their places of residence. Table 4.6 presents distribution according to how they (respondents) stay with their marital partners.

Table 4.6: Distribution of stay with partners

	Frequency	Percent
Staying with partner	206	48.5
Separated with partner	37	8.7
Not always staying with partner	13	3.1
Total	256	60.2

Table 4.6 indicates that majority (48.5% out of 60%) of the sampled married respondents were staying with their partners continuously, while 8.7% and 3.1% of the respondents were separated with their partners and not staying always with their partners respectively. This finding suggests that the respondents, being persons who continuously live together as a couple, must have been sharing a lot of information regarding reproductive health issues such as cervical cancer.

The next part of biographical information sought by the researcher concerned type of marriage that the respondents were in.

#### **4.2.7 Distribution by type of marriage**

The researcher also enquired from among the respondents who had indicated that they were married the type of marriage they were in. Table 4.7 presents the distribution by type of marriage.

Table 4.7: distribution by type of marriage

	Frequency	Percent
Monogamy	246	57.9
Polygamy	7	1.6
Total	253	59.5
Total	425	100.0

Table 4.7 illustrates that majority (57.9% out of 59.5%) of the sampled respondents who had indicated that they are married were in monogamous marriage, while only 1.6% were in polygamous marriage. This seem to suggest that married families under study are closely knit, thus could be in a position to share reproductive health information besides assisting each other to access reproductive health services such as cervical cancer screening and other prevention measures.

The other part of the study instrument assessed the number of children that each of the sampled respondents have. The next section presents this.

#### **4.2.8 Number of children among households**

The respondents were further requested to indicate the number of children that they have. Table 4.8 presents the distribution of respondents by the number of children.

Table 4.8: Distribution by number of children

	Frequency	Percent
	163	38.4
Over 5 children	36	8.5
No child	20	4.7

1 child	50	11.8
2 children	79	18.6
3 children	46	10.8
4 children	31	7.3
Total	425	100.0

Table 4.8 illustrates that most (18.6%) of the respondents had 2 children; 11.8% had 1 child; 10.8% had 3 children; 8.5% had over 5 children; and 7.3% had 4 children. Only 4.7% of the sampled respondents who were married indicated that they have no children. This seems to suggest that economic hardship associated with caring for many children in a family is not bearing much on the sampled respondents: hence they should be better placed to seek information related to reproductive health, cervical cancer included.

#### 4.2.9 Education Level of Respondents

The study instrument had also another part that enquired about education level of the sampled respondents. Table 4.9 presents distribution of respondents by level of education.

Table 4.9: Distribution by level of Education

Level	Frequency	Percent
None	10	2.4
Primary	131	30.8
Secondary	226	53.2
Tertiary	58	13.6
Total	425	100.0

Table 4.9 illustrates that majority (53.2%) of the sampled respondents had secondary level of education, while 30.8% had primary level of education. Additionally, 13.6% of the respondents had tertiary level of education and only 2.4% had no education at all. With 66.8% of the respondents having secondary and above levels of education, it was expected most of them were privy to issues of reproductive health such as cervical cancer screening and prevention. It also implies that each and every partner understands his or her role in as far as cervical cancer prevention is concerned.

#### **4.2.10 Religious affiliation**

The last part of the study instrument under demographic information of respondents enquired about religious affiliation. Table 4.10 presents distribution by religious affiliation of the sampled respondents.

Table 4.10: Distribution by Religious Affiliation

	Frequency	Percent
Catholic	128	30.1
Protestant	176	41.4
Other Christian churches	110	25.9
Muslims	2	.5
African traditional Religion	9	2.1
Total	425	100.0

Table 4.10 illustrates that most (41.4%) of the sampled respondents were of Protestant religious affiliation, while 30.1% were Catholics. Similarly, 25.9% of the respondents were of other Christian churches; 2.1% were of African Traditional Religion; and 0.5% of them were Muslims. With a strong Christian background, it was expected that the respondents are able to uphold moral characteristics that lead to uprightness in sexual life, thus minimising chances of reproductive health infections like HPV that cause cervical cancer.

#### **4.3 Awareness, Screening, and Role of Men in Prevention of Cervical Cancer**

The purpose of the study was to investigate level of awareness, awareness of screening and the role of men in prevention of cervical cancer. Using descriptive statistics alongside regressions, the following findings were established based upon the study objectives.

### 4.3.1 Level of Awareness of Cervical Cancer

With regard to awareness of cervical cancer, the sampled respondents were first asked whether they have heard about cervical cancer. Figure 4.1 presents the study findings. In response, about 327 (76.9%) have heard whereas 76 (17.9%) have not heard while 22 (5.2%) did not know.

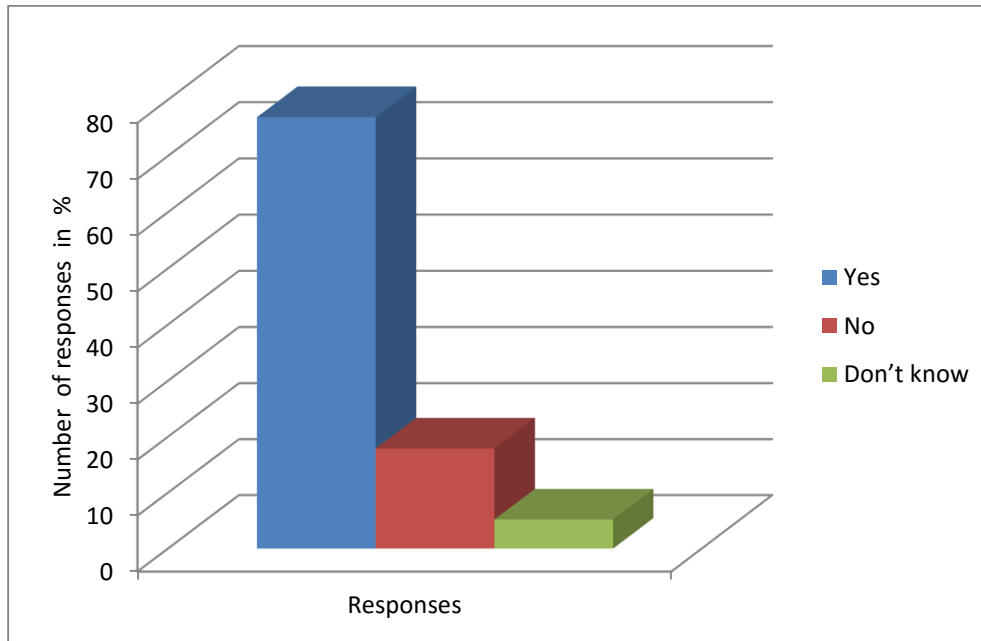


Figure 4.1: Distribution of respondents by CC awareness level

Figure 4.1 illustrates that majority (76.9%) of the sampled respondents have heard about CC, whereas 17.9% have not heard about it. Additionally 5.2% of the respondents were not sure whether they have heard about it or not.

The study also enquired about the source of CC knowledge from the sampled respondents. Table 4.11 presents the sources of knowledge of CC among the sampled residents of tea farms in Nandi Hills Division.

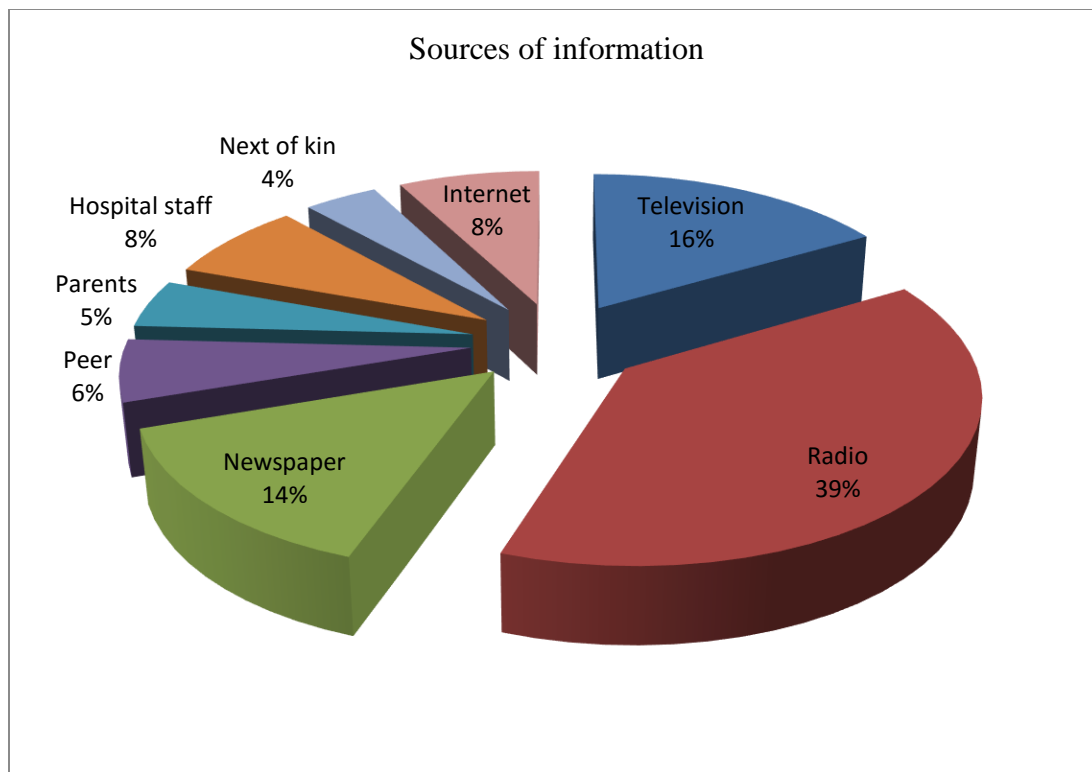


Figure 4.2: Pie chart showing various sources of information

Figure 4.2 shows that most (39%) of the sampled respondents acquired knowledge of CC from radio announcements; 8% from the hospital staff; 16% from television broadcasts; 5% from parents; 14% from newspaper articles; 4% from next of kin; and 8% from the internet. Radio announcement and television programs as well as hospital staff remain the major sources of awareness of CC among tea farm residents.

Additionally, respondents sampled from tea farm workers were asked to express their agreements or disagreements with regard to awareness of risk factors and symptoms of CC as presented by the researchers as: True; False; I don't Know. Table 4.11 presents the findings on awareness of elements of CC.

Table 4.11: Distribution by awareness of risk factors and symptoms of CC

<b>Risks:</b> which one can lead to development of cervical cancer?	<b>True</b>		<b>False</b>		<b>I don't know</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Smoking	108	(25.4)	243	(57.2)	74	(17.4)
Alcohol	147	(34.5)	192	(45.2)	86	(20.2)
Family history	177	(41.6)	177	(41.6)	71	(16.7)
Multiple sexual partners	253	(59.5)	110	(25.9)	62	(14.6)
History of HPV infection	201	(47.3)	106	(24.9)	118	(27.8)
Early sexual debut	200	(47.1)	143	(33.6)	82	(19.3)
Impaired immunity	163	(38.4)	148	(34.8)	114	(26.8)
Use of IUCD	211	(49.6)	110	(25.9)	104	(24.5)
Poor hygiene	305	(71.8)	66	(15.5)	54	(12.7)
<b>Symptoms</b>						
Post coital bleeding	220	(51.8)	94	(22.1)	111	(26.1)
Inter-menstrual bleeding	186	(43.8)	114	(26.8)	125	(29.4)
Blood stained vaginal discharge	197	(46.4)	93	(21.9)	135	(31.8)
Pelvic pain	209	(49.2)	101	(23.8)	115	(27.1)
Post-menopausal bleeding	175	(41.2)	105	(24.7)	145	(34.1)
Painful coitus	248	(58.4)	53	(12.5)	123	(28.9)

Table 4.11 illustrates that poor hygiene (71.8%); multiple sexual partners (59.5%) and the use of IUCD (49.6%) are some of the factors that the sampled tea farm workers considered as true risk factors of cervical cancer. Others are history of HPV infection (47.3%); early sexual debut (47.1%); family history (41.6%); impaired immunity (38.4%); alcohol (34.5%); and smoking (25.4%). On the other hand, most (57.2%) of the respondents indicated it is false to consider smoking as risk factor that can lead to cervical cancer. Equally, 45.2% of the respondents believed that it false to view alcohol as a risk factor of cervical cancer contraction, while 41.6% of them view family history as not being a risk factor for CC contraction.

With regard to symptoms of cervical cancer, most (58.4%) indicated that it is true that painful coitus is a symptom of CC, while 28.9% of them did not know whether it is a symptom; 51.8% suggested that it is true that post coital bleeding is a symptom of CC, while 26.1% were not



aware of this; pelvic pain (49.2%) was also indicated as a symptom of CC, although 27.1% of them did not know if this is a symptom of CC; others symptoms agreed with were blood-stained vaginal discharges (46.4%); inter-menstrual bleeding (43.8%); and post-menopausal bleeding

#### 4.3.2 Level of Awareness of Cervical Cancer Screening

In order to establish the level of awareness to cervical cancer screening, the researcher begun by enquiring from the study respondents whether they have heard about cervical cancer screening. Figure 4.2 presents the response regarding participation in screening for CC.

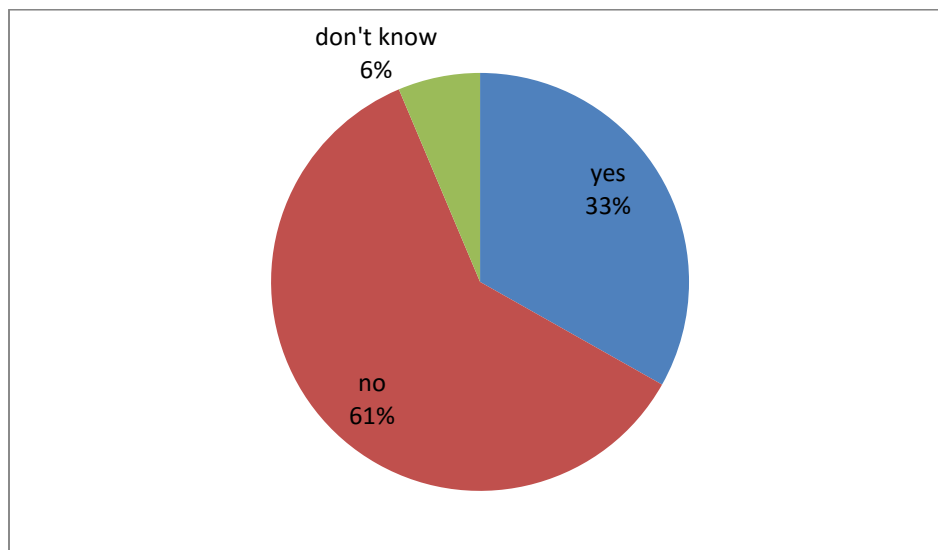


Figure 4.3: Awareness of cervical cancer screening

According to Figure 4.2, majority (61%) have not heard of cervical cancer screening, while 33% have heard and 6% answered they do not know whether they have heard or not.

In order to establish awareness of cancer screening methods that are frequently used for early detection of the disease, the respondents were asked to state the screening methods they are aware of and Table 4.12 presents the distribution by frequency of screening methods used.

Table 4.12: Distribution of Screening Methods

Screening method	Number of respondents(N)	Percent
Pap smear	151	29
VIA/VIL	16	3
HVS	38	7
HPV testing	23	4
Blood testing	63	12
Don't know	235	45

Table 4.12 illustrates that the respondents were mostly aware that Pap smear test is most (29%) frequently used method of cervical cancer screening. Other methods that are also used are visual inspection with acetic acid and visual inspection with Lugol's iodine (3%), HPV testing (4%). Also, HVS (7%) was stated as screening methods likewise blood test (12%). However, most of the study participants were not aware of any screening method, and they responded don't know (45%). This is an indication that awareness on cervical cancer screening methods is still low amongst the tea farm workers.

The researcher further requested the sampled respondents to indicate the possible reasons for non-attendance for cervical cancer screening. Table 4.13 presents reasons for non-attendance to cervical cancer screening among the sampled females (N=186).

Table 4.13: Reasons for non-attendance to cervical cancer screening

Response	Frequency	Percent
Had a regular checkup (females only)	11	6.1
I do not have time for it	24	12.6
Health staff hostile	12	6.4
Clinic is too far from my living place	49	26.6
Waiting time is too long	22	11.8
Afraid to give a test	45	24.2
Do not think it is necessary	23	12.3

As illustrated in Table 4.13, distance to the health facility (26.6%) which offers CC screening was the main hindrance to cervical cancer screening among the sampled respondents.

Additionally, being afraid of the test (24.2%) was also mentioned by the sampled female respondents as contributing to non-attendance to cervical cancer screening. Other obstacles were stated as being afraid of the screening tests (24.2%); lack of time for taking the screening (12.6%); not believing that the test is necessary (12.3%); waiting time being too long (11.8%); hostility of health staff (6.4%); while the remaining 6.1% of the respondents stated that having had regular checkup for cervical cancer was the main reason for non-attendance to screening tests.

The researcher further enquired the perception of the sampled respondents with regard to the importance of cervical cancer screening. Table 4.14 summarizes the respondents' perception of cervical cancer screening.

Table 4.14: Perception towards cervical cancer screening

	Yes		No		Don't know		Total	
	F	%	F	%	F	%	F	%
Do you think it is important?	356	83.8	22	5.2	47	11.1	425	100.0
Do you plan to participate?	319	75.1	63	14.8	43	10.1	425	100.0
Are you at risk of getting cervical cancer? (women only)	66	34.6	112	61.6	8	3.8	186	100.0

As illustrated in Table 4.14, majority(83.8%)of the sampled respondents felt that cervical cancer screening is an important exercise, while 5.2% of them indicated that it is not an important exercise; 11.1% of the respondents did not know whether it is important or not. It is also illustrated in Table 4.14 that majority (75.1%) of the sampled respondents are willing to participate in CC screening, while 14.8% of them indicated that they would not participate in such an exercise, with 10.1% of the respondents not knowing whether to participate or not. The study additionally revealed that 34.6% of the participants felt that they were at risk of getting the disease and 61.6% feeling not at risk.

### 4.3.3 Role of Men in the Prevention of Cervical Cancer

The third part of the study instrument sought to establish the role of men with regard to cervical cancer prevention. The male respondents were asked five questions in order to measure their involvement in the cervical cancer awareness. Table 4.15 presents distribution of the respondents by role of men.

Table 4.15: Role of Men in the cervical cancer services

Statements	Yes		No		Don't know	
	F	%	F	%	F	%
Have you ever discussed cervical cancer with wife/partner?	57	(23.8)	178	(74.5)	4	(1.7)
Has your wife/partner been screened for cervical cancer?	16	(6.7)	214	(89.5)	9	(3.8)
If yes, did she disclose to you her results?	14	(87.5)	1	(7.2)	1	(6.3)
Would you pay for your partners' transport to be screened?	210	(87.8)	14	(5.9)	15	(6.2)
Have you ever gone with your wife/partner to a reproductive health clinic?	34	(14.2)	194	(81.2)	11	(4.6)

Table 4.15 illustrates that majority (74.5%) of the sampled males had never discussed cervical cancer with their partners, while only 23.8% of them had discussed the same with their wives. This points at the fact that men seldom discuss much of the reproductive health issues, particularly CC, with their spouses. It is also illustrated in Table 4.15 that majority (89.5%) of the sampled males do not know if their spouses have been screened for CC, while 3.8% do not know whether they have been screened or not. In addition, 6.7% of the sampled male respondents agreed that their partners have been screened for cervical cancer.

The males who knew that their spouses have been screened for CC, most (87.5%) indicated that they knew their spouses' CC screening results obtained from the health clinic, while 7.2% of them indicated that their spouses did not disclose to them such results. 87.8% of the males would be willing to pay for transport to screening facility while 5.9% would not while 6.2 don't know whether to pay or not. Further, 14.2% have accompanied their spouses during clinical visits while majority (81.2%) did not accompany them. 4.6% were non-committal on whether they accompanied or not.

#### 4.3.4 The relationships between Awareness, Screening, Role of Men and Prevention of Cervical Cancer

The last part of the study instrument assessed the relationship between awareness, screening and role of men on one hand, and prevention of cervical cancer on the other hand. To determine the nature and direction of the relationship that exists between awareness of CC, screening for CC, role of men, and cervical cancer prevention among tea farm workers, logistic regression analysis was carried out to examine the effects of the potential predictors (awareness of CC, screening for CC, role of men) on cervical cancer prevention among tea farm workers. Table 4.16 presents results of the model of prediction using logistic regressions.

**Table 4.16: Model of prediction using logistic regression**

Independent variables	OR	95.0% C.I.		p-value
		Lower	Upper	
Awareness of CC	0.286	.000	.421	.001
Screening for CC	0.567	.000	.770	.001
Role of men	2.229	.048	4.941	.048

Dependent Variable: Prevention of Cervical Cancer

Table 4.16 shows results from a logistic regression where the independent variables were awareness of CC, screening for CC, and role of men in prevention of CC, while the dependent variable was cervical cancer prevention. A highly statistically significant association was observed between role of men and CC prevention (OR 2.229, 95% CI: 0.048-4.941;  $p < 0.048$ ). Furthermore, the results showed a statistically significant association between awareness on CC screening and prevention (OR 0.567, 95% CI: 0.000-0.770;  $p < 0.001$ ). Awareness on CC had a significant association with prevention (OR 0.286, 95% CI: 0.000-0.421;  $p < 0.001$ ).

## CHAPTER FIVE

### DISCUSSION

#### 5.0 Introduction

This section discusses the study findings. It provides interpretation of findings as well providing comparisons between findings of other similar studies with those of the present study. The discussion falls in the sequence of the study objectives.

#### 5.1 Level of Awareness of Cervical Cancer

With regard to level of awareness of CC, majority of the respondents were found to have heard about CC. This level of awareness (of CC) is however, larger than that established by most studies. For instance, Altay, *et al.*, (2015) established in Turkey that 55.1% of students in one university had knowledge about cervical cancer. Similarly in India, Siddharthar, *et al.*, (2014) revealed that less than half of women attending a tertiary care were aware of cervical cancer and only one-third of the women had knowledge about its risk factors. In contrast, a study carried out in South Africa by Ramathuba, *et al.*, (2016) among rural women in Vhembe District in Limpopo Province revealed that women lacked knowledge about cervical cancer. Further, (Wright, *et al.*, 2014) in a study on Cervical Cancer: Community Perception and Preventive Practices in an Urban Neighborhood of Lagos (Nigeria) stated that knowledge generally does not necessarily translate to practice in numerous cases as has been observed on certain occasions. Residents of Tea Farms in Nandi Hills thus stand above most regions in as far as awareness of CC is concerned.

The most common source of CC knowledge was found to be radio announcements as well as television among tea farm residents. This might be because of widespread media coverage knowledge by health promoters. This seems to conform to (Ndlovu, 2011) findings in a study on awareness, knowledge and experiences of women regarding cervical cancer in rural Kwazulu-Natal, South Africa. The study found that 22% (n=14) of the respondents were aware of CC through the media. This contrasted the findings by (Al-Meer, *et al.*; 2011) on a study Knowledge, attitude and practices regarding cervical cancer and screening among women visiting primary health care in Qatar found that the main source of information on Pap smear was relatives and friends.

Additionally, respondents sampled from tea farm workers accepted that poor hygiene; multiple sexual partners and the use of IUCD are some of the factors that the sampled tea farm workers considered as true risk factors of cervical cancer. On the other hand, most of the respondents indicated it is false to consider smoking; alcohol, and family history as risk factor that can lead to cervical cancer. These findings seem to contrast most studies that have focused upon awareness of CC. For instance, study by Siddharthar, *et al.*, (2014) revealed in a study among women attending a tertiary care hospital in Puducherry, India that long term use of oral contraceptive pill, poor genital hygiene, having a sexual partner with multiple partners were considered the major risk factors for cervical cancer. Moreover, Klokou (2014) also established in a study among female health professionals in Ghana that respondents were not sure whether smoking any form of cigarettes, infection with Chlamydia, having a sexual partner who is not circumcised, having many children and not going for regular pap smear increased one's risk of developing cervical cancer or not.

With regard to symptoms of cervical cancer, the respondents indicated that it is true that painful coitus; post coital bleeding; pelvic pain; and blood-stained vaginal discharges are some of the main symptom of CC. The foregoing findings confirm that bleeding during or after sex, vaginal bleeding after menopause and pain during sex as main symptoms of CC (Siddharthar, *et al.*, 2014). But according to Klokou (2014), many people do not know whether persistent lower back pain, bleeding from vagina, persistent pelvic pain and unexplained weight loss were signs and symptoms of the disease or not. It would therefore be critical to reveal how such mixed awareness of risk factors and symptoms of CC relate with prevention of the same.

## **5.2 Level of Awareness of Cervical Cancer Screening**

Concerning level of awareness of CC screening, the study found that majority of the sampled females has not attended cervical cancer screening. This implies that non-attendance rate is high in the tea farm area. Non-attendance of cervical cancer screening was also established among Black-Asian-Minority Ethnic communities in the U.K by Marlow, *et al.*, (2015). Low attendance of cervical cancer screening was also established by Mupepi, *et al.*, (2011) in Zimbabwe, where 91% of the respondents had never had cervical cancer screening. It is thus not uncommon that very few women often attend cervical cancer screening, particularly in Africa and other low resource countries. This is because many obstacles, many of which seem to be resource-related,

abound in Africa and other development countries. The importance of enquiring reasons for non-attendance to screening of CC thus necessitated the researcher to ask the respondents to state the reasons for the same.

Additionally, the study found that Pap smear test is most frequently used method of screening. It is important to note that similar finding was obtained by Ncube, *et al.*, (2015) in a study done among women in Portland, Jamaica. Of the 403 respondents were interviewed, 66% had had a Papanicolaou (Pap) smear within the past year. Interestingly, Ebu, *et al.*, (2015) attained contrasting results in a study among 392 randomly selected sexually active females aged 10–74 years in Ghana. It revealed that majority (97.7%) of the women had never heard of the Pap smear test, and only three (0.8%) of the women had had a Pap smear test. However, in a study among female primary school teachers in Kasarani division, Ombech, *et al.*, (2012) established that 75% of them knew about the Pap smear test although only 41% had ever had a Pap smear test done. It is thus emerging that awareness and access of methods of cervical cancer screening is contextual or regional based.

The study also found that, distance to the health facility which offers CC screening was the main hindrance to cervical cancer screening among the sampled respondents, alongside being afraid of the test; and lack of time for the test. These findings imply that non-attendance is most probably attributed to locations of the clinics: which are far and not easily accessible owing to the distance that has to be covered. The foregoing findings however, contradict outcomes obtained by many researchers who mostly established lack of awareness of CC as the main contributor to non-attendance to screening of cervical cancer. A study by Balogun, *et al.*, (2012) conducted in Nigeria among women residing in two urban slums of Lagos established that age, education and previous history of vaginal examination were positively associated with willingness to undergo screening. Additionally, barriers to cervical cancer screening have also been established to include fear of positive results, absence of pain, busy work schedules, unfriendly screening procedures, and long waiting times at the health services by Atuhaire (2013). It has therefore emerged that non-attendance to screening of CC is contextual, and distance to and from health facilities where the exercise is done seem to be a determining factor among tea farm workers of Nandi Hills.



Accordingly, majority of the study respondents felt that cervical cancer screening is an important exercise. This suggests that given opportunity, most women will definitely opt for cervical cancer screening. Similar finding was obtained by Wright, *et al.*, (2014) in a study done among residents of an urban neighborhood of Lagos, Nigeria. The study revealed that 84.5% of the participants were willing to attend a cervical cancer health education program. Equally, Umar (2014) also established that participants in a Bauchi metropolis study were highly receptive to free cervical cancer screening. It is thus not surprising that majority of the sampled female respondents are willing to participate in CC screening,

### **5.3 Role of Men in Prevention of Cervical Cancer**

The third part of the study instrument sought to establish the role of men with regard to cervical cancer prevention. Findings indicated that majority of the sampled males had never discussed cervical cancer with their partners. This points at the fact that men seldom discuss much of the reproductive health issues, particularly CC, with their spouses. This finding, however, seems to contrast findings by Pitts, *et al.*, (2009) and Asuzu, *et al.*, (2014) which revealed that men do show strong support for HPV vaccination and most husbands would encourage their spouses to screen for cervical cancer respectively. Moreover, majority of the sampled males do not know whether or not their spouses have been screened for CC, and also their spouses did not disclose to them CC screening results obtained from the health clinic. Perhaps findings in Asuzu, *et al.*, (2014) succinctly provided proper explanation to this: husbands' cervical cancer related knowledge had a significant logistic relationship with husbands' practices encouraging wives to go for cervical cancer screening while their attitude towards screening did not.

### **5.4 Relationship between awareness and Cervical Cancer Prevention**

Logistic regression was used to analyze the direction of the relationship between the dependent and independent variable. Results from logistic regression suggest that workers in tea farms are likely to exhibit higher cervical cancer prevention if their male partners are adequately involved in supporting their spouses towards prevention of CC. However, studies done in most developed countries like USA have revealed that most male persons are unconcerned with CC prevention among their female counterparts. For instance, the same result was obtained by Treviño, *et al.*, (2011) in a study on the impact of Latino males on Latinas and their cancer screening behaviours in the USA. It revealed that Latino men have little knowledge about breast or cervical

cancer screening and are unfamiliar with their partners' screening histories. Male participants were also less likely to complete program assessment forms (pre, post, demographic questionnaires).

The strongest predictor of CC prevention was the role of men recording OR 2.22. This indicated that the men who were involved in CC services were 2 times more likely to report higher CC prevention level than those who did not. Similar observation has been reported by Twinomujuni, *et al.*, (2015). This could be attributed to the major role men play in decision making in the family and that their approval of health interventions such as cervical cancer screening services would increase their uptake. The OR for CC awareness showed that the respondents were 29% (OR 0.286) less likely to report high cervical cancer prevention as similarly found by Klokun (2014). Similarly, awareness on cervical cancer screening services were 57% (OR 0.567) less likely to report high cervical cancer prevention. This attest that awareness on cervical cancer may not translate to increased cervical cancer screening as in similar findings by Sudenga, *et al.*, (2013).

Lastly, there is a need to improve awareness of at-risk groups and the menfolk about cervical cancer based on the immense benefit of male involvement in reproductive health matters as was studied by (Wright, *et al.*, 2014) in a study Cervical Cancer: Community Perception and Preventive Practices in an Urban Neighborhood of Lagos (Nigeria). Women with knowledge of the preventive attitudes and purpose for screening were more likely to identify themselves as at risk for cervical cancer.

## **CHAPTER SIX**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1: Summary of the findings**

The present study sought to establish the awareness of, screening and role of men in prevention of cervical cancer among tea farm workers of Nandi hills Division in Nandi County, Kenya. Four objectives which were assessed include level of awareness of cervical cancer among tea farm workers; the level of awareness of cervical cancer screening by tea farm workers; the role of men in the prevention of cervical cancer among tea farm workers; and the relationships between awareness of cervical cancer screening, role of men and prevention of cervical cancer among tea farm workers..

With regard to the level of CC awareness, the study found that there is high awareness of CC among respondents of the tea farm, with radio being the main source of awareness. The main risk factors causing CC was indicated as poor hygiene and multiple sexual partners, while the main known symptoms was found to be painful coitus.

Concerning awareness of CC screening, the study found that participation in screening for cervical cancer is low in the area. Of those who have screened for CC, Pap smear screening method is the most common method known in the area. The main reason for not participating in CC screening in the area is the distance to clinic location. However, most women consider CC screening as important, with most of them willing to participate in the exercise.

Considering the role of men in CC prevention, the study revealed that most men do not discuss cervical cancer with their spouses, and majority of them know that their partners have not screened for CC. Equally, men in this area are not aware of CC screening results of their partners, although most of them are willing to provide transport to clinics for their spouses for CC screening and most of them seldom accompany their partners to CC screening clinics. However, 81.2% of the males have never accompanied their partners to CC screening clinics

Regarding the relationship between awareness of CC, awareness of CC screening, and role of men on one hand, and prevention of cervical cancer, the study found a highly statistically

significant association observed between role of men and CC prevention (OR 2.229, 95% CI: 0.048-4.941;  $p=0.048$ ). Furthermore, the results showed a statistically significant association between awareness on CC screening and prevention (OR 0.567, 95% CI: 0.000-0.770;  $p=0.000$ ). Awareness on CC had a significant association with prevention (OR 0.286, 95% CI: 0.000-0.421;  $p=0.000$ ). Similarly, awareness of CC, screening for CC, and the role of men all account for 76.9% of cervical cancer prevention among tea farm workers,

## **6.2 Conclusion**

1. Based upon the study findings, the study concludes that there is high level of awareness of CC among respondents of the tea farm from radio broadcastings. Similarly, the main risk factors considered by residents of the tea farm estate to be causing CC is poor hygiene and multiple sexual partners, while the main known symptoms is painful coitus.
2. Participation in screening for CC is low in Nandi Hills Tea farm estate, with Pap smear method being most commonly used among participants. Distance to clinics where CC screening is performed is the main hindrance to participation, although most women consider CC screening as important and are willing to participate in the exercise.
3. Most men do not discuss cervical cancer with their spouses and are aware that their partners have not screened for CC. Equally, men in the tea estate are not aware of CC screening results of their partners, although they are willing to assist their spouses in accessing the services without accompanying them to the clinics.
4. Prevention of CC has only been achieved to a small extent in the tea farm estate. Equally, the residents only consider awareness to be affecting CC prevention to a small extent. However, awareness of CC, screening for CC, and the role of men significantly account for cervical cancer prevention among tea farm workers,

## **6.3 Recommendations**

### **6.3.1 Recommendations for improvement in Prevention of Cervical Cancer**

1. Based on the conclusions drawn by the study, it is recommended that through various radio programs using a language commonly understood, CC awareness campaigns should be enhanced in such areas as Nandi Hills Tea estate. Such awareness campaigns should encompass causes, risk factors, and common symptoms of CC.
2. The study also recommends that public awareness campaigns for CC screening need to be enhanced in areas like tea farm estates. In addition, more screening centers should be established to enhance accessibility and equipped with appropriate machines to enable administration of various methods. This would give room for tests to be done without fear of accompanying risks.
3. Participation of men in CC awareness and screening should be encouraged through public health campaigns and radio programs. Through appropriate counseling approaches, men should be urged to know CC status of their spouses, besides providing assistance towards screening and treatment of the same.
4. In order to step up prevention of CC in Nandi Hills Division, there should be increased CC awareness, CC screening and the role of men for they are the major factors that showed have influence on the overall preventive outcomes.

### **6.3.2 Recommendations for further studies**

To widen the knowledge in areas of cervical cancer particularly awareness of screening and role of men in cervical cancer screening, it is recommended that further studies be done on:

1. Effect of socio cultural inclinations on participation in cervical cancer screening among women aged between 15 and 40 years.
2. Contribution of gender stereotyping on male participation in cervical cancer screening involving their spouses.

## REFERENCES

- Akintayo, A.A., Olowolayemo, R.O., Olomajobi, O.G., Seluwa, G.A., Akin-Akintayo, O.O. and Fasubaa, O.B. (2013). Awareness of cervical cancer and its prevention among young women in Ekiti State, South-West Nigeria. *Tropical Journal Obstetrics Gynaecology*, 30 (2)
- Ali, S.F., Ayub, S., Manzoor, N.F., Azim, S., Afif, M., et al. (2010). Knowledge and awareness about cervical cancer and its prevention amongst interns and nursing staff in tertiary care hospitals in Karachi, Pakistan. *PLoS ONE* 5(6).
- Altay, B., Avci, I.A, Rizalar, S, Oz. H., Meral, D. (2015). Breast and cervical cancer knowledge and awareness among university students. *Asian Pacific Journal for Cancer Preview*, 16 (5), 1719-1724.
- Asuzu, C.C. Akin-odanye, E and Adejumo, A (2014). Husbands' knowledge, attitude and behavioural disposition to wives screening for cervical cancer in Ibadan. *African Journal for the Psychological Study of Social Issues*, 17(2), 167 – 176.
- Atuhaire, L. (2013). Barriers and facilitators to uptake of cervical cancer screening among women accessing maternal and child health services in Kampala, Uganda. Unpublished thesis presented to University of Western Cape. P 1
- Baskaran, P., Subramanian, P., Rahman, R.A., Ping, W.L., Taib, N.A.M., and Rosli, R. (2013). Perceived susceptibility, and cervical cancer screening benefits and barriers in Malaysian women visiting outpatient clinics. *Asian Pacific Journal for Cancer Prevention*, 14 (12), 7693-7699.
- Balogun, M.R, Odukoya, O.O., Oyediran, M.A and Ujomu, P.I. (2012). Cervical cancer awareness and preventive practices: a challenge for female urban slum dwellers in Lagos, Nigeria. *African Journal of Reproductive Health*, 16 (1), 75 – 82.
- Ebu, N.I, Mupepi, S.C., Siakwa, M.P and Sampsel, C.M. (2015). Knowledge, practice, and barriers toward cervical cancer screening in Elmina, Southern Ghana. *International Journal of Womens Health*. 7: 31–39.
- Finocchiaro-Kessler, S., Wexler, C., Maloba, M, Mabachi, N., Ndikum-Moffor, F and Bukusi, E. (2016). Cervical cancer prevention and treatment research in Africa: a systematic review from a public health perspective. *BioMed Central Women's Health*, 16 (29), 1 – 25.
- Gerend, M.A and Barley, J. (2009). Human Papilloma virus vaccine acceptability among young adult men. *Sexually Transmitted Diseases* 36 (1):58-62.
- Hoque, E. and Hoque, M. (2009). Knowledge of and attitude towards cervical cancer among female university students in South Africa. *South African Journal of Epidemiological Infections* 24 (1), 21-24.

- Kei, R.M., M’Ndegwa, J.K., Ndwiga, T and Masika, F. (2016).Challenges of cervical cancer screening among women of reproductive age inKisii town, Kisii County, Kenya. *Science Journal of Public Health*, 4 (4), 289-296.
- Khan, T.M., Buksh , M.A., Rehman, I.U. and Saleem, A. (2016). Knowledge, attitudes, and perception towards human papilloma virus among university students in Pakistan. *Papilloma virus Research*, 2, 122–127.
- Kloku, C.A. (2014). Awareness and prevention of cervical cancer among female health professionals: A study of three health institutions in Winneba, Ghana. Unpublished thesis submitted to Kwame Nkrumah University of Science and Technology. P 36-37
- Lyimo, F.S. and Beran, T.N. (2012). Demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district of Tanzania: Three public policy implications. *BMC Public Health* 12, 22.
- Marlow, L. A. V., Wardle, J. and Waller, J. (2015). Understanding cervical screening non-attendance among ethnic minority women in England. *British Journal of Cancer*113, 833–839.
- Medeiros, R and Ramada, D. (2010). Knowledge differences between male and female university students about human papilloma virus (HPV) and cervical cancer: Implications for health strategies and vaccination. *Vaccine*, 29 (2), 153-1560.
- Ministry of Health.(n.d.). 100,000 Kenyans die from Non Communicable Diseases each year Retrieved February 23, 2017, p 1105
- Modibbo, I. F, Dareng E, Bamisaye P, et al. (2016). Qualitative study of barriers to cervical cancer screening among Nigerian women.*British Medical Journal Open* 6.
- Muia E, Olenga J, Kimani V, Leonard A: Integrating men into the reproductive health equation: acceptability and feasibility in Kenya in critical issues in reproductivehealth. New York: The Population Council, Inc.; 2010:1-22.
- Mukakalisa, I., Bindler, R., Allen, C., & Dotson, J. (2014). Cervical cancer in developing countries: effective screening and preventive strategies with an application in Rwanda. *Health Care for Women International*, 35(7–9), 1065–1080.
- Mupepi, S.C., Sampselle, C.M. and Johnson, T.R.B. (2011).Knowledge, attitudes, and demographic factors influencing cervical cancer screening behavior of Zimbabwean Women. *Journal of Women’s Health*, 20, (6)
- Naveen, R., Nihkil D., Thaddaeu, V. and Nisha, C. (2014).Screening for cervical dysplasia and reproductive tract infections among coffee plantation workers in Kodagu District, Karnataka, India. *International Journal of Occupational Safety and Health*, 4 (2) 01 – 04.

- Ncube, B., Bey, A., Knight, J., Bessler, P. and Jolly, P.E. (2015). Factors associated with the uptake of cervical cancer screening among women in Portland, Jamaica. *American Journal of Medical Sciences*, 7 (3), 104-13.
- Ochodo, E.A. (2010). Cervical Cancer prevention in Kenya: Special consideration for HIV infected women. Unpublished project submitted to the Royal Tropical Institute. P 1
- Olumide A. A, Olatunbosun K.F. and Oluwatosin O.O. (2014). Knowledge, perception and predictors of uptake of cervical screening among rural Nigerian women. *Journal of Public Health and Epidemiology*, 6 (3), 119 – 124.
- Ombech, E. A., Muigai A.. W.T. and Wanzala, P. (2012). Awareness of cervical cancer risk factors and practice of Pap smear testing among female primary school teachers in Kasarani division, Nairobi Kenya. *African Journal of Health Sciences*, 21, 121-132
- Ortashi, O., Shallal, M., Osman, N. and Raheel, H. (2012). Knowledge, attitude and practice of school nurses in the United Arab Emirates about HPV infection and vaccine. *Asian Pacific Journal of Cancer Prevention*, 13 (12), 6481-6484.
- Pitts, M., Smith, A., Croy, S., Lyons, A., Ryall R, and Garland S, et al (2009). Singaporean men's knowledge of cervical cancer and Human Papillomavirus (HPV) and their attitudes towards HPV vaccination. *Vaccine*. 27, 2989-2993.
- Ramathuba, D.U., Ngambi, D, Khoza, L.B, and Ramakuela, N.J. (2016). Knowledge, attitudes and practices regarding cervical cancer prevention at Thulamela Municipality of Vhembe District in Limpopo Province. *African Journal of Primary Health Care for Family Medicine*, 8 (2), 1 – 7.
- Rosser, J.I., Zakaras, J.M., Hamisi, S and Huchko, M. (2014). Men's knowledge and attitudes about cervical cancer screening in Kenya. *BMC Women's Health* 14 (1) 138 – 145.
- Siddharthar, J., Rajkumar, B. and Deivasigamani, K. (2014). Knowledge, awareness and prevention of cervical cancer among women attending a tertiary care hospital in Puducherry, India. *Journal of Clinical Diagnosis Research*, 8 (6), 1–3
- Snijders, P.J., Verhoef, V.M., Arbyn, M., Ogilvie, G., Minozzi, S., Banzi, R., et al. (2013). High-risk HPV testing on self-sampled versus clinician-collected specimens: a review on the clinical accuracy and impact on population attendance in cervical cancer screening. *International Journal of Cancer*, 132 (10), 2223-2236.
- Sudenga, S.L., Rositch, A.F., Otieno, W.A. and Smith, J.S. (2013). Knowledge, attitudes, practices and perceived risk of cervical cancer among Kenyan women. *International Journal of Gynecological Cancer* 23 (5), 895–899.
- Treviño, M., Jandorf, L., Bursac, Z. and Erwin, D.O. (2011). Cancer screening behaviors among Latina women: The Role of the Latino male. *Journal of Community Health* 37 (3), 694–700



- Twinomujuni, C., Nuwaha, F, and Babirye, J.N. (2015). Understanding the low level of cervical cancer screening in Masaka Uganda using the ASE Model: A Community-Based Survey. PLoS ONE 10 (6) 1 – 15.
- Umar, I. (2014). Assessment of cervical cancer knowledge, perception and prevention attitude among female students of reproductive age (16 – 49) in four tertiary institution within Bauchi Metropolis. International Journal of Advancements in Research & Technology, 3 (11), 1 – 6.
- World Health Organization (2010). Tanzania: Human Papillomavirus and Related Cancers, Fact Sheet 2010.
- WHO guidance note (2013). Comprehensive cervical cancer prevention and control: A healthier future for girls and women. WHO Press, World Health Organization, Geneva; Switzerland.
- Wright, K. O., Aiyedehin, O., Akinyinka, M. R., & Ilozumba, O. (2014). Cervical Cancer: Community Perception and Preventive Practices in an Urban Neighborhood of Lagos (Nigeria). International Scholarly Research Notices, 2014, 950534.

## APPENDIX I: Questionnaire

### MASENOUNIVERSITY

### SCHOOL OF PUBLIC HEALTH AND COMMUNITY DEVELOPMENT (ESPUDEC)

I am a public health student of MasenoUniversity carrying out a study on **the awareness on cervical cancer by tea farm workers of Nandi Hills Division Nandi East District of Nandi County**. The purpose is to collect information on cervical cancer from volunteer people working in tea farms who are over 15 years of age. If you join the study, you will answer questions provided in this questionnaire and your name will not be required as your response will be confidential. The study will help in a strategy to reduce cervical cancer incidence and mortality in the division. **Please be honest with your answers.**

Enock Kipkorir Tum PG/MPH/0020/11

1. Village/Jina la kijiji? .

2. Location/lokesheni .

### RESPONDENT'S DEMOGRAPHIC FACTORS:

3. Age/umri (in completed years)\_\_\_\_\_

4. Sex/jinsia (1) Male (2) Female

5. Where is your residential place located/unaishi sehemu gani?

(1) Rural area/mashambani (2) Tea Estate/majani chai (3) Nandi Hills town/jiji la Nandi Hills

6. For how long have you stayed in this place/area/Umeishi kwa muda gani?

(1) Less than three months/chini ya miezi mitatu.

(2) Three to Six months/miezi tatu hadi sita

(3) Six to Nine months/miezi sita hadi tisa

(4) More than Nine months/zaidi ya miezi tisa.

7. Marital status/umeoa au kuolewa

(1) Single/sijaoa/kuolewa (If single go to No12) (2) Married/nimeoa/kuolewa.

(3) Widow/mjane. (4) Widower/mke alifariki (5) Divorcee/tumetalakiana

(6)Separate/tumetengana

8. If married, do you stay with your partner/je, mnaishi na mpenzi wako?

(1) Yes/ndio.

(2) No/la.

(3) Not always/sio kila mara.

**9. Type of marriage/aina ya ndoa?**

- (1) Monogamy/mke mmoja (2) Polygamy/wake wengi

**10. If answer to above is 2/ikiwa jibula swali la 9 ni 2 ( polygamy/wake wengi),**

Number of wives/idadi ya wake (For male only/wanaume pekee)

- (a) 2 (b) 3 (c) 4 (d) over 5

Number of co-wives/wake wenza? (For females only/wanawake pekee)

- (a) 1 (b) 2 (c) 3 (d) over 4

**11. How many children do you have/idadi ya watoto?**

- (a) No child (b) 1 (c) 2 (d) 3 (e) 4 (e) over 5/zaidi ya 5

**12. What is your highest level of education/kiwango cha masomo?**

- (1) None/hakuna (2) Primary/shule ya msingi (3) Secondary/shule ya upili (4) Tertiary/elimu ya juu.

Religious affiliation/kanisa?

- (1) Catholic/katoliki (2) Protestant/kiprotestanti (3) Other Christian/aina nyingine ya kikristo (4) Muslim/muislamu (5) African Traditional Religion/kitamaduni

**II. LEVEL OF CERVICAL CANCER PREVENTION**

Kindly state the level of your agreement with regard to level of cervical cancer prevention in your area as: **1-** Strongly Disagree; **2-** Disagree; **3-** Neither Agree nor Disagree; **4-** Agree **5-** Strongly Agree, in accordance to your level of awareness of cervical cancer prevention.

No	Items	1	2	3	4	5
1	There is prompt treatment of cancer related ailment					
2	All females aged 15 years and above are often offered free CC treatment					
3	Knowledge of CC is evenly spread					
4	All adults are largely aware of CC					
5.	Health centers are readily accessible for CC vaccination					
6	There is satisfactory free vaccination for CC					

### III. AWARENESS TOWARDS CERVICAL CANCER/UFAHAMU KUHUSU SARATANI YA MLANGO WA UZAZI

**13.** Have you heard about cervical cancer/umewahi kusikia kuhusu saratani ya mlango wa uzazi?

- (1) Yes/ndio (2) No/la (3) Don't know/sina ufahamu

**14.** If yes, what was the source of information/ ikiwa ndivyo, ulipata ujumbe kutokawapi?

- (1) Television/runinga (2) Radio/redio (3) Newspaper/Magazeti  
(4) Peer/marafiki (5) Parents/wazazi (6) Hospital staff/maafisa wa afya  
(6) Next of Kin/jamaa za familia (7) internet/tuvuti

**15.** Answer True or False by ticking the following questions in the table/ jibu maswahili yafuatayo kwa kusahihisha kweli ama uongo.

<b>Risks/hatari:</b> Which one can lead to development of cervical cancer/je, ni gain inaweza kusababisha saratani ya mlango wa uzazi?	<b>TRUE/ KWELI</b>	<b>FALSE/ UONGO</b>	<b>I DON'T KNOW/SINA UFAHAMU</b>
Smoking/kuvuta sigara			
Alcohol/pombe			
Family history/kuwepo kwa familia			
Multiple sexual partners/washirika wengi wa ngono			
History of HPV (Human Papillomavirus) infection/kuambukizwa kirusi cha HPV			
Early sexual debut/kuanza kushiriki ngono mapema			
Impaired immunity/kinga ya mwili ilio lemaa			
Use of IUCD (Intra Uterine Contraceptive Device)/kifaa cha IUCD cha kupanga uzazi			
Poor hygiene/kua mchafu			
Symptoms/dalili			

Post coital(sexual) bleeding/kufuja damu baada ya ngono			
Inter-menstrual bleeding (bleeding before menstrual days)/kufuja damu kabla ya siku za hedhi			
Blood stained vaginal discharge/damu kwenye matoko			
Pelvic pain/ uchungu wa kiuno			
Post-menopausal bleeding/kufuja damu baada ya kupita miaka ya kuzaa			
Painful coitus(pain during sexual act)/uchungu wakati wa ngono			

#### **IV. AWARENESS OF CERVICAL CANCER SCREENING**

1. Have you have taken cervical cancer test?

a) Yes

b) No

2. Which of the following reasons often lead to non-attendance to cervical cancer screening, in your opinion?

a) Distance to health facility

b) Long waiting time at the health facility

c) Hostility of hospital staff at the health centre

d) Fear to take a test of cervical cancer

3 Express the frequency of which you have undertaken the following CC screening methods as:

1=Most Infrequent; 2=Infrequent; 3= Neither frequent nor infrequent; 4=Frequent; Most Frequent

	1	2	3	4	5
Pap smear test					
HPV-DNA testing					
Colposcopy					
Visual inspection with acetic acid					
Visual inspection with Lugol's iodine (VILI)					
Polar Probe					

4. Kindly state your perception towards cervical cancer under the following:

	Yes	No	Don't know
--	-----	----	------------

Do you think it is important?

Do you plan to participate?

Are you at risk of cervical cancer? (women only)

#### V. LEVEL OF MALE INVOLVEMENT (FOR MEN ONLY/WANAUME PEKEE)

No.	Statement	YES/ NDI O	NO/ LA	I DON'T KNOW/ INA UFAHA MU
1.	Have you ever discussed about cervical cancer with your wife/partner/umewahi kusungumza na mkeo/mpenzi kuhuzu saratani ya mlango wa uzazi?			
2.	Has your wife/partner been screened for cervical cancer/Je, mke/mpenzi wako amepata kugaguliwa saratani ya mlango wa uzazi?			
3.	If yes, did she disclose to you her results/Ikiwa ndivyo, je alikufikishia majibu?			

4.	Would you pay for your partners'/ wife's transport to be screened/ Utaweza kumlipia nauli mkeo/mpenzi ili akafanyiwe ugaguzi?			
5.	Have you ever gone with your wife/partner to reproductive health clini/ je, umewahi kuandamana na mkeo/mpenzi hadi kliniki ya uzazi?			

**16.** Describe your relationship with your wife/partner if you know that she has had a pap smear test/eleza uhusiano wako na mkeoau mpenzi ukigundua kwamba amefanyiwa ugaguzi wa pap

(1) Good as ever/vizuri zaidi

(2) Good enough/vizuri ya kadiri

(3) Good/vizuri

(4) Poor/mbaya

**17.** Do you have any information about cervical cancer that you would like to be given/je unahabari yeyote ungependa kujua kuhusu ugonjwa wa saratani ya mlango wa uzazi? If **YES**, write below/orodhesha hapa chini)

---

**THANK YOU FOR SPARING YOUR TIME TO RESPOND TO THESE QUESTIONS/ASANTE KWA MAJIBU YAKO KWA MASWALI HAYA**

DATE\_\_\_\_\_

**APPENDIX II: Consent form-English version**  
**MASENO UNIVERSITY**

**ASSESSING AWARENESS ON CERVICAL CANCER BY TEA FARM WORKERS OF  
NANDI HILLS DIVISION, NANDI EAST DISTRICT, KENYA**

**CONSENT FORM**

I am Enock Kipkorir Tum, a public health student of Maseno University carrying out a study on **the awareness on cervical cancer by tea farm workers of Nandi Hills Division Nandi East District of Nandi County**. The purpose of the study will be to assess awareness and the level of male involvement that would impact the prevention, management and control of cervical cancer in Nandi Hills Division of Nandi East District. I will ask you some questions in form of a questionnaire regarding the above subject. There are no risks or direct benefits involved in the study and your contributions will be used to generate knowledge, awareness and inform policy considerations to reduce cervical cancer incidence and mortality by use of health promotion strategies on the overall population.

Your responses will be kept confidential. You are at liberty to join the study or refuse without any consequence

I have read the above information or have been read to me and asked questions which all have been answered satisfactorily.

I now consent to participate in the study.

**Name of the participant-----Signature; -----Date -----**

I, the undersigned, have explained the relevant details of this study to the respondent above.

**Name -----Signature -----Date -----**

**Contact Address: Enock Kipkorir Tum; Telephone Number 0720343187 or Professor C. Ouma; Telephone Number 0722381214 or  
Dr. B. Guyah; Telephone Number 070721206932.**



**APPENDIX III: Consent form-Swahili version**  
**MASENO UNIVERSITY**

**ASSESSING AWARENESS ON CERVICAL CANCER BY TEA FARM WORKERS OF  
NANDI HILLS DIVISION, NANDI EAST DISTRICT, KENYA**

**FOMU YA KUIDHINISHA**

Jina langu ni Enock Kipkorir Tum, mwanafunzi anayesomea Afya ya Uma katika Chuo cha Maseno. Kichwa cha utafiti wangu ni kutanabahi kuhusu ugonjwa wa saratani ya mlango wa uzazi kwa watu wanaofanya kazi katika mashamba ya majani chai katika divisheni ya Nandi Hills, wilaya ya Nandi Mashariki, kaunti ya Nandi. Lengo la utafiti huu ni kuchunguza utanabaishaji na kiwango cha kushiriki kwa wanaume ambayo yataweza kuleta mabadiliko katika kukinga, usimamizi na kuthibiti ugonjwa wa saratani ya mlango wa uzazi katika divisheni ya Nandi Hills, wilaya ya Nandi Mashariki, kaunti ya Nandi. Nitakuuliza maswali kwanjia ya fomu ya maswali kuhusu utafiti huu. Hakuna hatari zozote au manufaa ya kibinafsi yanayohusiana na utafiti huu na michango yako yatatumiwa kukuza elimu, kutanabahi na kusalisha sera yatakayo punguza muonekano na vifo kwa kutumia mbinu za afya zinazosaidia umma kwa ujumla.

Majibu yako yatawekwa siri. Una uhuru kuamua kushiriki au kutoshiriki katika utafiti huu.

Nimesoma habari yaliyomo hapa ama kusomewa na nimeuliza maswali yanayohusiana na kujibiwa vilivyo.

Ninakubali kushiriki katika utafiti huu.

**Jina la mshiriki-----Sahihi; -----Tarehe -----**

Mimi mtafiti nimeeleza kinaganaga kuhusu utafiti huu kwa mshiriki.

**Jina -----Sahihi -----Tarehe -----**

**Anwani ya mawasiliano: Enock Kipkorir Tum; Nambari ya simu 0720343187 au Profesa**

**C. Ouma; Nambari ya simu 0722381214 au**

**Dr. B Guyah Nambari ya simu 0721 206932.**

## APPENDIX IV: Regression Data Outcome

**Classification Table(a)**

Observed			Predicted		
			prevention		Percentage Correct
			high	low	
Step 1	Prevention	high	133	11	92.4
		low	25	70	73.7
	Overall Percentage				84.9

The cut value is .500

**Variables in the Equation**

		B	S.E.	Wald	d. f	Sig.	Exp.(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Step 1(a)	Awareness	-1.179	.187	39.587	1	.000	.308	.213	.444
	screening	-.558	.152	13.390	1	.000	.573	.425	.772
	Role of men	.018	.189	.009	1	.925	1.018	.703	1.474
	Constant	6.697	.993	45.471	1	.000	809.769		

Variable(s) entered on step 1: Awareness, screening, role of men.