FACTORS ASSOCIATED WITH CERVICAL CANCER AMONG WOMEN ATTENDING REFERRAL HOSPITALS IN DAR ES SALAAM, TANZANIA

Karugira Yofasi Rweyemamu, MD

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By

Karugira Yofasi Rweyemamu

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled ***Factors associated with cervical cancer among women attending referral hospitals in Dar es Salaam, Tanzania*** in fulfillment of the requirements for the degree of Master of Science in Applied Epidemiology of Muhimbili University of Health and Allied Sciences.

_____

Dr. C. Moshiro (PhD)

(Supervisor)

Date: _____

_____

Dr. J. Mghamba (MD, MPH, MSc)

(Supervisor)

Date: _____

DECLARATION AND COPYRIGHT

I, **Karugira Yofasi Rweyemamu**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature…… Date: ……

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DEDICATION

This work is dedicated to my beloved Mother and late father, Theodosia Rweyemamu and Boniphace Rweyemamu respectively.

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted Odds Ratio
CD_4	T cell "Cluster of differentiation"
CIN	Cervical Intraepithelial Neoplasia
COR	Crude Odds Ratio
CTC	Care and Treatment Clinic
DNA	Deoxyribonucleic Acid
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HR-HPV	High Risk - Human Papilloma Virus
HSIL	High grade Squamous Intraepithelial Neoplasia
IPD	Inpatient Department
IUCD	Intra Uterine Contraceptive Device
MoHSW	Ministry of Health and Social Welfare
MNH	Muhimbili National Hospital
MUHAS	Muhimbili University of Health and Allied Sciences
NCD	Non Communicable Disease
OPD	Outpatient Department
ORCI	Ocean Road Cancer Institute
OR	Odds Ratio

VCT	Voluntary Counselling and Testing
WHO	World Health Organization
TDHS	Tanzania Demographic Health Survey
TFELTP	Tanzania Field Epidemiology and Laboratory Training Program

ABSTRACT

Background: Cervical cancer is the third most common cancer in women, and fourth cause of cancer death in females worldwide. More than 85% of the global burden occurs in sub-Saharan Africa. In Tanzania 35.3% of cancer patient**s** attending Ocean Road Cancer Institute have cervical cancer. HIV constitutes about 21% among cervical cancer patients at ORCI in 2007.

Objective: To determine factors associated with cervical cancer among women attending referral hospitals in Dar es Salaam.

Methods: This was a hospital based unmatched case control study with a case to control ratio of 1:1. A case was a woman attending Ocean Road Cancer Institute (ORCI) with a confirmed cervical cancer diagnosis in less than 6 months from the day of recruitment. A control was woman attending the Gynaecology clinic at Muhimbili National Hospital with non-cancer related diagnosis. A standardised structured questionnaire was used**;** data analysis was performed in Epi Info and STATA. Multiple logistic regression models were used to estimate adjusted odds ratios (AORs).

Results: A total of 165 cases and 165 controls were included in the study. The mean age ± standard deviation was 51±12 years and 33 ± 11 years among cases and controls respectively. 98 (59.4%) of cases were peasants while 91 (60.7%) of the controls were employed. The HIV prevalence was 42 (28.3%) among cases. Significant risk factors for cervical cancer in our study included lowest wealth quintile (AOR = 6.29; 95% CI: 2.12 – 18.13), peasant (AOR = 6.20; 95% CI: 1.58 – 25.00), occasional post coital genital wash (AOR= 2.8, 95% CI= 1.01 – 7.72) and oral contraceptive use (AOR= 2.29; 95% CI= 1.09 – 5.23).

Conclusion: HIV prevalence among cases was quite high. These data provide further evidence that low socio-economic status, oral contraceptive use and poor genital hygiene conditions were the main risk factors for cervical cancer.
Recommendations: Scaling up of cervical cancer prevention and control interventions should address socio-economic, behavioural and HIV infection among the risk population.

CONTENTS

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CHAPTER ONE

1.0 INTRODUCTION

1.1BACKGROUND

Cancer is the generic term for a group of diseases that can affect any part of the body. This disease has the capacity to grow beyond their usual boundaries, can invade adjoining tissues and may spread to other organs or tissues as metastases. According to WHO cancer is the leading cause of death in economically developed countries and the second leading cause of death in developing countries [(1).] The increase in burden of cancer is attributed to population aging and growth, adoption of life style risk factors associated with cancer such smoking, alcoholism, physical inactivity and unhealthy diet [(2).]

Based on GLOBOCAN 2008 estimates, about 12.7 million cancer cases and 7.6 million cancer deaths are estimated to have occurred worldwide. The developing countries contribute more than 50% cases and 64% deaths. The most commonly diagnosed cancers worldwide are lung (12.7% of the total), breast (10.9%) and colorectal cancers (9.7%). Also lung cancer is the leading cause of death followed by liver cancer [(3)]. Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among females, while lung cancer is the leading cancer in males.

Cervical cancer is the third most common cancer in women, and the fourth leading cause of cancer death in females worldwide [(4)]. In year 2008, it was estimated to account for 9% total new cases and 8% of the total cancer deaths among females[(3)]. More than 85% of the global burden occurs in developing countries. Worldwide the highest incidence rates are in Eastern, Western and Southern Africa (5). Mortality rates of cervical cancer are substantially lower than incidence with ratio of mortality to incidence of 52% [(4)].

Screening program are the potential preventive strategy to lower both incidence and mortality, as it is evidenced in developed world where mortality rates are less than 5

per 100,000 women and high survival rate of 70% and 66% in the United States and Western Europe respectively [5], while in sub-Saharan Africa in 2002 the survival rate was 21%.

In Tanzania, cervical cancer is the leading cancer among women contributing to 35.3% of all cancer patients admitted at Ocean Road Cancer Institute. The age range most affected is from 15 to 44 years with age specific incidence rate of 34 per 100,000 [6]. With a population of 10.97 million women above 15 years who are at risk of developing cervical cancer, WHO estimates more than 7000 new cases are diagnosed with cancer and more than 6000 die from the disease each year. These estimates are projected to rise to more than 12000 cases and 9900 deaths per year if there are no specific interventional measures [7].

The causal link between Human Papilloma Virus (HPV) infection and cervical cancer development has been established by several studies leading to change in disease epidemiology [8,9] etc. However variations in disease prevalence could be explained by the difference in other attributing disease cofactors such as social and sexual behaviour, reproductive characteristics and socio economic status.

WHO emphasises on primary prevention of cervical cancer by vaccinating against HPV and establishment of National screening programs for early detection of cervical malignancy among population at risk. These interventions are reported as the reason for the decline in the incidence of invasive cancer of the cervix in many developed countries [9].Tanzania is a low income country that suffers from resource constrains, national HPV vaccination for eligible is yet to be a reality, moreover screening services are provided in few donor funded sites in urban setting. The 2008 – 2018 Tanzania National strategy for Non Communicable Diseases (NCD) 2008-2018 addresses the importance of screening as well as health promotion by increasing awareness of risk factors and promoting healthy life style.

1.2 PROBLEM STATEMENT

WHO estimate highest cervical cancer cases and deaths originate from sub Saharan region [10] with East Africa having high burden of a mortality rate of 34 deaths per 100,000 women per year compared to 9 deaths per 100,000 women per year worldwide [4].

In Tanzania, current burden of cervical cancer is unknown but estimates from GLOBOCAN indicate that Tanzania has a leading incidence estimates among East Africa countries with more than 6000 cases per year and the cases are projected to almost double in 2025 to about 10257 cases per year if no preventive intervention are put in places [3,4].

Human Papilloma virus has been associated with development of cervical cancer. WHO recommend cervical cancer screening programs with or without HPV testing as these have been found to be effective in lowering both disease incidence and mortality [11,12]. This strategy is yet however to be implemented in Tanzania. Furthermore, high smoking prevalence [13] and increased alcohol consumption in developing countries have been associated with risk sexual behaviour and are important factors in development of cancer of cervix and so is early sexual debut [14]. HIV prevalence among cervical cancer cases at ORCI was 21% [15] in 2007. Currently in Tanzania the trend among Tanzanian adult women of age between 15 to 49 is reported to drop from 6.6 % in 2007-08 to 6.2% in 2011-12 [16]. However, currently there is no data available that reflects this trend among cervical cancer cases.

Based on what is already known about potential cancer risks and risk-reduction interventions, studies have shown that it is possible to prevent at least one-third of all cancers through early risk identification and screening. Risk factors for cervical cancer have been less investigated in East Africa including Tanzania thus leading to paucity of information on current risk pattern of these factors (sexual behaviour, smoking, socio-economic, reproductive history). The current understanding of life style and behavioural risk factors for cervical cancer is from studies done mostly in high and middle income countries. It is therefore unclear if the identified risk factor pattern for cervical cancer in other settings is the same in Tanzania. Identification of

the factors associated with cervical cancer will assist the Ministry of Health and Social Welfare in development of a cervical cancer health promotion and preventive strategy.

1.3 RATIONALE

Tanzania has the highest cervical cancer incidence in East Africa, account for about 35.3% of all cancer patients seen at the only cancer institute in the country. Late detection of cervical cancer usually deny women from early curative treatment, thus increases morbidity and mortality rates.

The National Strategy for NCDs (2008 -2018) as well as the National cervical cancer prevention and control strategy addresses equitable preventive and curative services through health promotion (lifestyle modification, safe sexual behaviour, cervical screening and health education on tobacco and excess alcohol consumption) and primary prevention (HPV vaccination, cancer screening, early diagnosis and treatment).

Currently the cancer screening programme in this country is marginalized in few health facilities which are donor funded. HPV vaccination is yet to be implemented thus revealing the need for addressing these other factors which are likely to influence the promotion and preventive strategies is justified.

This study will inform both health specialists and policy makers on identified factors associated with cervical cancer hence stimulating the focus on effective secondary cervical cancer prevention, which is the practical method for settings with no universal national HPV vaccine coverage like Tanzania. In addition, study finding will assist in making evidence based public health actions and refine the preventive activities within the national cervical cancer preventive and control strategy.

1.4 RESEARCH QUESTION

Our research was question was to find out factors are associated with cervical cancer among women attending ORCI and MNH in Dar es Salaam?

1.5 STUDY OBJECTIVES

1.5.1 Broad Objective

To determine factors associated with cervical cancer among women attending referral hospitals (ORCI and MNH) in Dar es Salaam.

1.5.2 Specific Objectives:

1. To describe socio demographic characteristics of cases and controls
2. To determine factors associated with cervical cancer
    a) Socio-economic factors
    b) Behavioural factors
    c) Reproductive factors
    d) HIV infection

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Cervical cancer in sub-Saharan Africa

Cervical cancer is the most common cancer in women in sub-Saharan Africa and second to breast cancer in northern Africa. In sub-Saharan African, it accounts for 22.2% of all cancers in women and it is also the most common cause of cancer death among women. About 60–75% of women in sub- Saharan Africa who develop cervical cancer live in rural areas (10) and mortality is very high (4) .

Many of the women who develop cervical cancer are untreated, mostly due to lack of access (financial and geographical) to health care. Women in sub Saharan Africa lose more years to cervical cancer than to any other type of cancer (18). Unfortunately, it affects them at a time of life when they are critical to the social and economic stability of their families

2.2 Risk factors for cervical cancer

2.2.1 Human papillomavirus

Human Papilloma Virus has the strongest link to cervical cancer development. It is an extremely common virus that is transmitted through sexual contact or by skin-to-skin contact. There are over one hundred different strains of HPV. Persistent genital HPV infection has been established as the main etiological factor in the development of cervical cancer. It is estimated that 50 percent to 80 percent of sexually active women contract infection at least once in their lifetimes (7,8,19)

The genital-type HPVs are divided into high, intermediate and low-risk types, according to the association with genital tract cancer. High risk types HPV 16, 18, 31, 45 accounts for more than 90% of cervical carcinoma HPV 16 found to be the commonest type (8) HPV types 16 and 18 infection alone account for up to 70% of all cervical cancers.

WHO estimate the prevalence of HPV 16 subtype in Tanzania to be 41% of cervical malignancies [6], while Myassa and colleagues report a prevalence of High risk HPV

(HR HPV) types in Tanzania as 20.1%, ranging from 14.8% in women with normal cytology to 94.2% in women with high grade squamous intraepithelial lesion (HSIL). HPV16 was the dominating type in HSIL (32.8%) (21).

2.2.2 Sexual behaviour/Practice

2.2.2.1Multiple male sexual partners

Multiple sexual partner increases the chances of acquiring Sexually transmitted disease. Studies done in both rural and urban areas have showed significant association between having multiple sexual partners and cervical cancer (12,22–24). Mnyika et al in Tanzania reports the prevalence of more than one sexual partner to be 25.2% in women aged between 15 to 49 years. Furthermore, a study done in Morocco showed that promiscuity and polygamist which is related to multiple sexual partner increases the risk of cervical cancer (24).

2.2.2.2 Age at first sexual intercourse

Adolescence period (15 to 24 years) is period most people become sexually active. It is critical period as one is vulnerable towards both sexual and reproductive health risk including multiple sexual partners and unprotected sex. Also sexual debut at younger age is viewed as the proxy indicator for one to have multiple sexual partner exposure and sexually transmitted Infections (STI) including HPV and HIV(12,25). Early sexual debut is reported more documented among cervical cancer patients than the late counterpart. At young age the cervix has immature membrane, thus making it susceptible to towards oncogenic agent particularly (HR HPV) (8). Cooper and others in South Africa reported increased early sexual activity among women commencing sexual intercourse below 16 years (26). Furthermore, a study in Zimbabwe reported 12% of women of child bearing age had sexual debut below 16 years. The demographic health survey in Tanzania found 12.8% among female adolescent (15 – 25) had first sexual intercourse below age of 16 years (27).

2.2.2.3 Genital hygiene

Poor genital hygiene particularly post sexual intercourse is currently associated with cervical cancer incidence in both rural and urban women (28–30). The effect is uncertainly explained, however studies postulate that poor genital hygiene provide more exposure of HPV infection to the susceptible cervix (4,7,19,22,23) A case control study in Mali found poor genital wash was strongly associated with cervical cancer (29). The hygiene risk on cervical cancer is associated with the social status, water access and sanitation and personal hygiene (31).

2.2.3 Reproductive characteristics

2.2.3.1 Age at menarche, age at first delivery and parity

Reproductive characteristics such as age at menarche, age at marriage and age at first delivery are viewed as proxy determinant factors for one to be exposed to the causative agent for cervical cancer (HPV). Early engagement in sexual intercourse may predispose one to have early pregnancy at an early age and ultimately early childbearing. High number of births has been reported in many previous studies to be associated with development of cervical cancer (22,32–34). High parity predisposes a woman to hormonal carcinogenesis and birth trauma which are common in young age.(35). The association was reported also in Uganda by Newton et al were the risk of cervical cancer increased among women with >3 births and the risk was more as the trend increases.(36).

2.2.3.2 Contraceptive use

Users of contraceptive pill are linked with development of cervical cancer. The postulated mechanism is favouring persistency of which induces carcinogenesis. Some studies were able to establish increased risk of oral contraceptives use among cases (24) (37) (38). Furthermore, some studies report lack of association between oral contraceptives use and cervical cancer (27,32,39,40) while uterine device contraceptive (IUCD) has been shown to be a protective cofactor in cervical carcinogenesis with the protective effect becoming stronger with years of use (11,32,35)

2.2.4 Socio-economic status

Social economic status is defined in different ways in previous studies. The most common variables used include household income, education level, occupation and wealth status which is measured by property ownership and living conditions such as running water and indoor toilet [22,28,36,41]

Low education level has been found to increase the risk of developing cervical cancer [12,33,41]. Lack of education is associated with poor knowledge on risk factors, and less control over reproductive and sexual decision making (42). Moreover, sexual risk factors like engaging to prostitution and multiple partners are common in women with low education level (28). Conversely, other studies have suggested highly educated women are likely to be highly placed socially and have autonomy regarding sex and partner which can predispose to increased number of life time sexual partners. Parazzin and others could not associate education level with cervical cancer among young women (34,36,38).

Wealth status being measured by household or individual income, or ownership of various belongings has been found to be a risk factor for cervical cancer (22,28,31) Commonly social economically deprived are those residing in rural area, and its association with cervical cancer is interrelated with other parameter including inadequate screening and preventive control services like HPV vaccination.

Also women engaged in manual works including agricultural activities are reported to have increased risk of cervical cancer (32,36). A cases control in Uganda found increased risk among cultivators as compared other those engaged in other occupations.

2.2.5 HIV infection

Cancer of the cervix was classified as an AIDS-defining cancer by the United State Centres for Disease Control and Prevention in 1993 (43). HIV infection pathogenesis in cervical cancer involves compromise of the immune system, making it harder for the body to ward off an HPV infection.

A study in Zambia among HIV infected women found to have higher likelihood of having high grade cervical squamous intra epithelial lesion (SIL) (40). Also cervical cancer cases are reported to occur in more in the immune suppressed cases (44,45) Furthermore, HIV infection is suggested to shorten the progression of premalignant lesion to invasive cervical carcinoma resulting in early clinical presentation. A study in South Africa reported younger mean age in seropositive cases as compared to seronegative cervical cases. This finding was also reported from Kenya (39,46,47) Low CD4+ T Lymphocyte cell count less than 200cells/μL is also associated with likelihood of developing cervical SIL the possible explanation being reactivation and persistent infection with the higher risky HPV such as type 16 and 18 and this finding was reported in a study by Obure and colleagues in Northern Tanzania which also found to be agreed with other studies on rate of cervical SIL and HIV infection (48,49). Although HIV and CD4+ count are found to associate with the cervical cancer a study from Uganda contrary suggests the opposite on developing Squamous cell carcinoma or adenocarcinoma (45,50).

2.2.6 Cigarette smoking

The carcinogens in cigarettes are said to cause damage to the cervical cells exposing them to turn into malignancy once infected with HPV also Smoking reduces cervical immunity which would enhance the persistence of HPV infection which predict the risk of pre malignant lesion to progress to malignant(51). Cigarette smoking has long been suspected to increase the risk of cervical neoplasia despite difficult in proving association between smoking and cervical cancer due to strong correlation of smoking with various aspects of sexual behaviour. With advanced technology tobacco-specific carcinogens were able to be detected in the semen of smoking males hence indicating another vector for cervical exposure to carcinogens through sexual contact (52) . Currently the association of smoking with cervical cancer has been varying from lack/marginal association(12,36) significant association (53). In India

the Paan Chewing was common among women compared to smoking and was found to 2 to 3 fold increase in Risk for cervical cancer (12) .

2.2.8 Other risk factors

Male sexual behaviour, male circumcision status, presence of other infectious disease like *Chlamydia trachomatis* and *Herpes Simplex Virus type 2* are among other risk factors speculated to have association with cervical cancer include (52).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study area

The study was conducted at Ocean Road Cancer Institute (ORCI) and Muhimbili National Hospital (MNH) in Dar es Salaam, one of the 26 administrative regions in Tanzania. It is a commercial and major city of Tanzania with a population of 3,070,060 people (projection from 2002 Census). It also serves as a centre of Government administration, industry, commerce and banking activities. Administratively, Dar es Salaam is headed by the Regional Commissioner, a city council administration headed by the Mayor of Dar es Salaam and three Municipal Councils namely, Ilala, Kinondoni and Temeke.

Located along the Indian Ocean, ORCI is the only specialized facility for cancer treatment in Tanzania. ORCI offers numerous patient services including laboratory services, diagnostic imaging, chemotherapy, radiotherapy, palliative care services, screening for various types of cancers, and an HIV/AIDS care and treatment clinic. ORCI consists of four separate clinics: a new-patient clinic, follow-up clinic, radiation treatment clinic and chemotherapy treatment clinic. The new-patient clinic sees patients with all types of cancer that have confirmed biopsies and have been referred to ORCI for treatment. This is the patient's first appointment with a physician to discuss diagnosis and treatment options. The hospital bed capacity is 300 beds with two wards designated for female patients. The outpatient clinic operates from Monday to Thursday with an average of 40-45 patients attended per day.

MNH is a National referral hospital and university teaching hospital located in Upanga Dar es Salaam which receives referred patients from all over the country. It has a 1500 bed facility, attends 1,000 to 1,200 outpatients per day and admits 1,000 to 1,200 inpatients per day.

The Gynaecology wards are located within Sewahaji block for IPD with 60 bed capacity in two wards 34/35, while the OPD is located in the new block building.

3.2 Study design

This was an unmatched hospital-based case control study with a ratio of 1:1 for cases and controls.

3.3 Study population

The study population was in-patient or out-patient women aged 18 years or above attending ORCI and MNH obstetrics and gynaecology ward from December 2012 to February 2013.

A case: woman attending ORCI with a confirmed cervical cancer by histopathology in less than six month prior the day of recruitment to this study. A woman with no previous history of any malignancy, Histopathology results were counterchecked by investigators whether they were documented either on patient file or referral letter.

3.3.1 Inclusion criteria for cases

1. New case registered during study period
2. Has histopathology result for cervical cancer

3.3.2 Exclusion criteria for cases

1. Eligible case who does not consent to participate in the study
2. Eligible case with physical or mental impairment who cannot tolerate interview

A control: a woman attending at Gynaecology and Obstetrics department at MNH with non malignancy diagnosis.

3.3.3 Inclusion criteria for controls

1. Patients both IPD and OPD Gynaecology and obstetrics department during study period never diagnosed to have cervical cancer or other malignancy

3.3.4 Exclusion criteria for controls

1. Eligible control who did not consent for study
2. Control diagnosed of other tobacco-related diseases (example coronary heart disease, chronic bronchitis and Chronic Obstructive Pulmonary

Disease) due to the fact there is much awareness of associations of these diseases with smoking due to wide spread awareness campaign and this might bias the resulting in under estimation of the magnitude of effect.

3. History of hysterectomy or cervical conisation
4. Physical or mental problem history that can impair the interview

3.5 Sample size calculation

Number of sexual partner (two or more) was used as the exposure to calculate the sample size using Open Epi soft ware version 2.2.1. The following formula was used:

$$n_1 = \frac{\left(Z_{\alpha/2} + Z_{1-\beta}\right)^2 \bar{p}\bar{q}(r+1)}{r(p_1 - p_2)^2} \qquad n_2 = r\,n_1$$

Where

$\mathbf{n_1}$ = number of cases

$\mathbf{n_2}$ = number of controls

$Z_{\alpha/2}$=Standard normal deviate for two-tailed test based on alpha level

Z_{β}=Standard normal deviate for one-tailed test based on beta level

r = ratio of controls to cases

$\mathbf{p_1}$ = proportion of cases with exposure and $q_1 = 1-p_1$

$\mathbf{p_2}$ = proportion of controls with exposure and $q_2 = 1-p_2$

$$\bar{p} = \frac{p_1 + rp_2}{r+1} \quad \text{And} \qquad \bar{q} = 1 - \bar{p}$$

Inputs

1. Two-sided 95% confidence level
2. Study power = 80%
3. Ratio of controls to cases 1:1
4. Expected proportion of women having two or more sexual partners in past 5 years among control=25.2% (54)
5. Minimum odds ratio to be detected was set at 2

Therefore the required sample size was 330 (165 cases and 165 controls).

3.6 Sampling technique

The two referral hospitals (MNH and ORCI) were purposefully selected. ORCI is the only hospital in Tanzania which receives all confirmed referred cervical cancer cases from different regions in Tanzania and therefore served as a good source of cases. MNH was selected as the source for the controls since it is also a referral hospital receiving all referral cases across the country.

3.6.1 Selection of cases

ORCI receives about 80 to 100 new cervical cancer cases every month. All women who met the case definition during the study period at ORCI were consecutively recruited into the study until when sample size was attained.

3.6.2 Selection of controls

Controls were selected from the OPD and IPD patients at MNH Gynaecological Department as, IPD control included admitted patients selected from admission register during study period and OPD controls were selected from patient attending gynaecology clinics conducted on every Tuesday and Thursday. Patients who met the criteria for control and consented for study participation were recruited into the study until the control sample size was reached.

The gynaecology non cancerous patient were preferred as control because, we wanted the controls to be as much similar to cases except that they should not have

cervical cancer. Non cancerous gynaecology control share same entry point of consultation with the cases and probably similar back ground environment giving them equal opportunity for risk exposure as cases.

3.7 Variables measured

3.7.1 Dependent Variable - with cervical cancer (case), without cervical cancer (control)

3.7.2 Independent Variables (for both cases and controls)

1. Social demographic characteristics
    i) Age
    ii) Marital status
    iii) Occupation
    iv) Level of education

2) Behavioural characteristics
    i) Age at first intercourse
    ii) Number of life time casual male sexual partners
    iii) History of sexually transmitted disease among women
    iv) Post coital genital washing practice
    v) Cigarettes smoking
    vi) Male partner circumcision status

5. Reproductive characteristics
    i) Parity
    ii) Oral contraceptive use
6. Socio- economic status
    i) Property ownership (telephone, radio, television, bicycle, motor bike, car and refrigerator)
    ii) Living status (water source, type of roof)
7. HIV status

3.8 Data collection

A standardised structured questionnaire was used to collect information through interviewing the participants (both cases and controls). The information included social demographic characteristics, socio-economic factors, behavioural factors and reproductive factors.

Data for HIV status were collected through recording the study participant HIV result documented in the hospital file. HIV counselling and testing was done to participant with unknown HIV status. Test was not repeated to participant with documented HIV positive result since the study planned to use the same algorithm used in this country. HIV was tested using rapid test (55) which was recommended in Tanzania national algorithm for adult HIV counselling and testing guideline (56). In summary, blood was initially tested by Determine ^{TM} HIV-1/2 assay (Inverness Medical Japan Co. Ltd, Japan).Negative results were reported as negative, and no other confirmatory test was done. Blood sample with positive results were performed in a confirmatory test using Uni-Gold^{TM} HIV-1/2 (Trinity Biotech, Wicklow, Ireland). When results from a confirmatory test were positive, they were reported as positive and when negative they were reported as Negative. All manufacturers' instructions were observed throughout sample testing, and participants found HIV positive were linked to the Care and Treatment Clinics (CTC) clinics at both MNH and ORCI.

Data was collected by research assistants and the Principal Investigator. Research assistants were female nurses with knowledge and practice on HIV voluntary counselling and testing (VCT). A three day training workshop was conducted before data collection commenced. On day one they were oriented to the study objectives, procedures in obtained informed consent and the questionnaire. On day two, the questionnaire was pre-tested at both Ocean Road Cancer Institute and Muhimbili National hospital. And on day three feedback and discussion on what transpired from the field and changes were on questionnaire.

3.9 Data management and analysis

Data were entered and cleaned using computer software Epi Info version 3.5.3. Analysis was performed using Epi Info and STATA.

Wealth index was constructed using household asset data, including ownership of consumer items ranging from a television to a bicycle or car, as well as dwelling characteristics, such as source of drinking water and type of roofing material. Wealth quartiles were formed using principal components analysis.

Descriptive statistics was used to summarize demographic characteristics of cases and controls. Bivariate analysis was done through cross tabulations and unconditional univariate logistic regression for obtaining crude odds ratios (CORs) and corresponding 95% confidence intervals (CI). The Chi square test was used to compare proportions. Tests for trend were done using the Chi square test for trend. Multiple logistic regression was employed to assess factors independently associated with cervical cancer while adjusting for potential confounding factors. All variables with a P- value less than 0.20 in the univariate analyses were included in the multivariate model. Adjusted odds ratios and their 95% confidence intervals are presented. A two-tailed p -value of less than 0.05 was considered statistically significant.

3.10 Ethical considerations

The research protocol was submitted to the MUHAS Senate Research and Publications Committee for ethical clearance. Permission to conduct the study was granted by the MNH and ORCI. Informed consent was requested from all women who were interviewed and blood specimen taken. Participants were also informed regarding the study objectives, voluntary participation, withdrawal from participation, and that information was confidential and anonymously treated and personal details such as name and patient identification number were not used during analysis. All participants who provided blood specimen were counselled for result. Those who tested positive for HIV were linked to attend Care and Treatment Clinics (CTC) for further management according to the National HIV care and treatment guidelines.

CHAPTER FOUR

4:0 RESULTS

The field work of the study took place from December 2012 to February 2013 and a total of 330 participants were recruited.

4.1 Socio demographic characteristics of the study participants

A total 330 participants comprising of 165 cases and 165 controls were interviewed. The cases aged between 25 years to 83 years with mean age of 51±12 years while controls were aged between 18 to 33 years with mean age of 33 ± 11 years. There was significant age differences between cases and controls ($p<0.0001$). Table 1 shows the demographic characteristics of cases and controls. Majority of cases and controls were married or cohabiting i.e. 88 (53.3%) and 135 (81.8%) respectively. About one third of the cases had no education while 38.8% of the controls had at least secondary education. Most of the cases 98(59.4%) were peasant while 91(60.7 %) of controls were employed. A total of 47 (29.7%) of cases were ranked in the lowest wealth quintile while 45 (28.3%) of controls were ranked in the highest wealth quintile.

Table 1: Demographic characteristics of cases and controls

Characteristic	Cases (N=165)	Controls (N=165)	P-value
	n (%)	n (%)	
Age (years)*			
<30	8 (5.2)	74 (45.1)	<0.0001
30-39	18 (11.8)	60 (36.6)	
40-49	50 (32.7)	19 (11.6)	
50+	77 (50.3)	11(6.7)	
Religion			
Christian	97 (58.8)	85 (51.5)	0.24
Muslim	64 (38.8)	78 (47.3)	
Pagans/none	4 (2.4)	2 (1.2)	
Marital status			
Single/never married	3 (1.8)	16 (9.7)	<0.0001
Married /cohabiting	88 (53.3)	135 (81.8)	
Divorced /separated/ widowed	74 (44.8)	14 (8.5)	
Education level			
None	56 (33.9)	16 (9.7)	<0.0001
Primary	97 (58.8)	85 (51.5)	
Secondary and above	12 (7.3)	64 (38.8)	
Occupation*			
Employed	37 (22.4)	91 (60.7)	<0.0001
Housewife	30 (18.2)	45 (30)	
Peasant	98 (59.4)	14 (9.3)	
Wealth quintile*			
Highest	17 (10.8)	45 (28.3)	<0.0001
Fourth	22 (15.9)	42 (26.4)	
Third	39 (24.7)	25 (15.7)	
Second	33 (20.9)	29 (18.2)	
Lowest	47 (29.7)	18 (11.3)	

***Numbers do not add up to totals due to missing data**

4.2 Proportion of HIV infection among cervical cancer versus non cervical cancer participants

A total of 291 (88.2%) participants consented for HIV counselling and testing. About 16 (9.8%) of cases and 23 (13.6%) of controls did not consent and were not tested. The proportion of HIV among cancer patient was 42 (28.3%) and 142 (9.9%) among non cancer patients. Generally HIV prevalence was higher in older age, were 21 (53.8%) HIV positive cancer patient were aged 44 years

Table: 2 HIV prevalence among cancer patient by age group

Age group (years)	HIV status		Total
	Positive	Negative	
25-39	14 (63.6)	8 (36.4)	22
40-49	15 (34.9)	28 (65.1)	43
50+	10 (13.7)	63 (86.3)	73
Total	**39 (28.3)**	**99 (71.7)**	**138**

4.3 Factors associated with cervical cancer

Factor associated with cervical cancer were categorized into three major groups namely social economic, behavioural and reproductive factors. Social economic factors studied included education level, occupation and wealth index; behavioural factors included age at first intercourse, number of casual male partners, post coital genital wash practice, coitus with uncircumcised male partner, past history of STI infection and cigarette smoking and reproductive factors included parity and use of oral contraceptive.

4.3.1 Bivariate analysis

4.3.1.2.1 Socio-economic factors

Table 2 shows the bivariate crude odds ratios for socio-economic factors associated with cervical cancer. The odds of developing cervical cancer was 18.67 times more among women with no formal education as compared to women who attained secondary or higher education (95% CI= 8.14 – 42.81). Peasant women were 17

times more likely to have cervical cancer as compared to employed women (95% CI= 8.74 – 33.91). Moreover, the likelihood of cervical cancer among women in the lowest wealth quintile was 6.91 higher compared to women in the highest wealth quintile (95% CI = 3.17 – 15.06).

Table 3: Crude odds ratios for socio-economic factors associated with cervical cancer

Factor	Cases (%) N=165	Control (%) N=165	COR (95% CI)	P value
Education level				
None	56 (33.9)	16 (9.7)	18.67 (8.14 – 42.81)	<0.0001
Primary	97(58.8)	85 (51.5)	6.09 (3.08 – 12.04)	
Secondary and above	12 (7.3)	64 (38.8)	**1.0**	
Occupation*				
Employed	37 (22.4)	91 (60.7)	**1.0**	
House wife	30 (18.2)	45 (30)	1.64 (0.9 – 2.99)	<0.0001
Peasant	98 (59.4)	14 (9.3)	17.22 (8.74 – 33.91)	
Wealth Quintile*				
Highest	17 (10.8)	45 (28.3)	**1.0**	
Fourth	22 (15.9)	42 (26.4)	1.39 (0.65 – 2.96)	
Third	39 (24.7)	25 (15.7)	4.13 (1.95 – 8.75)	<0.0001
Second	33 (20.9)	29 (18.2)	3.01 (1.43 – 6.37)	
Lowest	47 (29.7)	18 (11.3)	6.91 (3.17 – 15.06)	

***Numbers do not add up to totals due to missing data**

4.3.2.2 Behavioural factors

Table 3 presents the bivariate crude odds ratios for behavioural factors associated with cervical cancer. The average age ± standard deviation at first intercourse was 16.6 ± 2.7 years and 18.7 ± 11.9 years for cases and control respectively. Women who had first sexual intercourse before age of 15 years were 5.44 times likely to have cervical cancer as compared to those starting sexual intercourse after age of 19 years

(95% CI= (2.41 – 12.75). Moreover, women who had never washed genitalia post intercourse had more than two odds of having cervical cancer compared to those who often washed genitalia post intercourse.(COR= 2.27, 95% CI= 1.31 – 3.92). Not using condom at all with casual partner was found to increase the odds of cervical cancer by 2.93 times compared to those who always use condom with casual partner (95% CI= 1.13 – 7.59). Moreover, women who had sexual intercourse with uncircumcised partner had 8.28 odds more for developing cervical cancer as compared to those who never had sexual intercourse with uncircumcised partner (95% CI= 3.92 – 17.47).

Women who had suffered any sexually transmitted disease were 5.28 more likely to develop cervical cancer as compared to those who never suffered STI (95% CI= 2.37 – 11.79).

Although women who reported to have two or more casual partners in the past, had 1.52 times increased odds of having cervical cancer as compared to women who had a single casual partner, the association was not significant (95% CI= 0.89 – 2.59).

Likewise, the odds of developing cervical cancer was 2.74 times more among ever smokers as compared to never smokers but the association was also not statistically insignificant (95% CI= 0.97 – 7.86)

Table 4: Crude odds ratios for behavioural factors associated with cervical cancer

Factor	Cases (%) (N=165)	Controls (%) (N=165)	COR (95% CI)	P-value
Age at first sex (years)				
< 15	31 (20.3)	15 (9.2)	5.44 (2.41 – 12.25)	
15 -19	103 (67.3)	98 (60.1)	2.77 (1.52 –5.02)	
≥ 20	19 (12.4)	50 (30.7)	1.0	<0.0001
Number of life time male casual partners				
None	98 (59.4)	111 (67.3)	1.0	
One	24 (14.5)	22 (13.3)	1.24 (0.65 – 2.34)	0.29
≥ Two	43 (26.1)	32 (19.4)	1.52 (0.89 – 2.59)	
Post coitus genital wash				
Often	83 (64.8)	117 (70.9)	1.0	
Occasionally	37 (22.4)	20 (12.1)	2.61 (1.41 – 4.81)	<0.0001
Never	45 (27.3)	28 (17)	2.27 (1.31 – 3.92)	
Coitus with uncircumcised male partner				
No	111 (67.7)	156 (94.5)	1.0	<0.0001
Yes	53 (32.3)	9 (5.5)	8.28 (3.92 -17.47)	
History of STI				
No	130 (78.8)	157 (95.2)	1.0	<0.0001
Yes	35 (21.2)	8 (4.8)	5.28 (2.37-11.79)	
Cigarette smoking				
No	152 (92.1)	5 (3.0)	1.0	0.05
Yes	13 (7.9)	160 (97.0)	2.74 (0.95 – 7.86)	

4.3.2.3 Reproductive factors

Bivariate odds ratios for cervical cancer in relation to reproductive factors are shown in Table 4. The study found that women who had parity ≥ 4 children were 16.68 times more likely to have cervical cancer compared to women with parity < 4 (95% CI=9.4 – 29.58).

The odds of cervical cancer among ever users of oral contraceptive were significantly increased by 19% compared to never users of oral contraceptive (COR=1.19, 95% CI= 1.13 – 3.19).

Table 5: Crude odds ratios for reproductive factors associated with cervical cancer

Factor	Cases (%)	Control (%)	COR (95% CI)	P-value
	N= 165	N=165		
Parity				
0 – 3	50 (30.3)	145 (87.9)	1.0	<0.0001
≥ 4	115 (69.7)	20 (12.1)	16.68 (9.4 – 29.58)	
Oral contraceptive use				
Never	116 (70.3)	135 (81.8)	1.0	0.014
Ever	49 (29.7)	30 (18.2)	1.19 (1.13 – 3.19)	

4.3.2 Multivariate analysis

The adjusted odds ratios for cervical cancer for in association with various risk factors are shown in Table 5.

After adjusting for other factors, the likelihood of having cervical cancer among peasants was 6.2 times higher compared to those employed (95% CI=2.12 – 18.13). The likelihood of getting cervical cancer among women in the lowest wealth was significantly higher among women in the lowest wealth quintile compared to women in the highest wealth quintile. (AOR= 6.29; 95% CI= 1.58 - 25).

Moreover women who occasionally wash genitalia post intercourse were found to have 2.8 likelihood of developing cervical cancer than women who do not wash at all genitalia post intercourse (AOR= 2.8, 95% CI= 1.01 – 7.72**).** Furthermore, the likelihood of cervical cancer was twice as much more among women who were ever users of contraceptive pills compared to women who had never used oral contraceptives. (AOR= 2.29; 95% CI= 1.09 – 5.23)

Table 6: Crude and adjusted odds ratios for socio-economic, behavioural and reproductive factors associated with cervical cancer

Factor	Cases N= 165	Control N=165	COR (95% CI)	AOR (95% CI)*
Age (per year)			1.14 (1.11 – 1.18)	1.11 (1.06 – 1.15)
Marital Status				
Single	3	16	1.0	1.0
Married /Cohabiting	88	135	3.48(0.98 – 12.28)	0.70(0.13 – 3.82)
Divorced /separated/ Widowed	74	14	28.19 (7.24 – 109.71)	2.25 (0.35 – 14.32)
Education level				
None	56	16	18.67 (8.14 – 42.81)	0.51 (0.17 – 1.52)
Primary	97	85	6.09 (3.08 – 12.04)	0.30 (0.07 – 1.25)
Secondary and above	12	64	1.0	1.0
Occupation				
Employed	37	91	1.0	1.0
Housewife	30	75	1.64(0.9 – 2.99)	1.58 (0.61 – 4.14)
Peasant	98	112	17.22(8.74 – 33.91)	**6.20 (2.12 – 18.13)**
Wealth quintile				
Highest	17	45	1.0	1.0
Fourth	22	42	1.39 (0.65 – 2.96)	0.43 (0.12 – 1.57)
Third	39	25	4.13 (1.95 – 8.75)	2.91 (0.92 – 9.22)
Second	33	29	3.01 (1.43 – 6.37)	1.69 (0.46 – 6.2)
Lowest	47	18	6.92 (3.17 – 15.06)	**6.29 (1.58 – 25.0)**
Age at first sexual intercourse				
≥ 20	19	50	1.0	1.0
15 -19	103	98	2.77 (1.52 -5.62)	1.58 (0.60 – 4.17)
< 15	31	15	5.44 (2.41 – 12.75)	0.70 (0.17 – 2.85)
Post coitus genital wash				
Often	83	117	1.0	1.0
Occasionally	37	20	2.61(1.41 – 4.81)	**2.80 (1.02 – 7.72)**
Never	45	28	2.27 (1.31 – 3.92)	1.22 (0.45 – 3.28)
Coitus with uncircumcised male partner				
No	111	156	1.0	1.0
Yes	53	9	8.28 (3.92 -17.47)	1.43 (0.44 – 4.62)
History STI				
No	130	157	1.0	1.0
Yes	35	8	5.28 (2.37- 11.79)	2.03 (0.57 – 7.22)
Cigarette smoking				
No	152	5	1.0	1.0
Yes	13	160	2.74 (0.95 – 7.86)	0.70 (0.1 – 4.77)
Parity				
0 – 3	50	145	1.0	1.0
≥ 4	115	20	16.68 (9.4 – 29.58)	2.13 (0.81 – 5.60)
Oral contraceptive use				
Never	116	135	1.0	1.0
Ever	49	30	1.19 (1.13 – 3.19)	**2.29 (1.09 – 5.23)**

*Significant factors in bold

CHAPTER FIVE

5.0 DISCUSSION

The study findings showed that factors independently and significantly associated with cervical cancer include being a peasant, poor genital hygiene, oral contraceptive use and low socio-economic status. Moreover, the study demonstrated a high proportion of HIV infection among cancerous patient as compared to non cancerous patients.

5.1 Proportion of HIV infection among cervical cancer versus non cervical cancer participants

The study found cervical cancer manifesting more at young age among HIV as compared to those without, a similar finding reported by Kahesa et al in Tanzania (39) (47). Our findings on high prevalence of HIV infection among cancer patients than control, was previously reported other studies (40) (44) (45). Also our prevalence was higher compared to that reported in study done at ORCI in 2007 (28.3% versus 21%)(15). This might be explained by the factor of time since 2007 to date, different strategies including to integration of cervical screening and HIV infection have been developed. Also active cervical cancer screening of HIV patient attending HIV care and treatment Clinics (CTCs) (57).

We also observed higher prevalence of HIV among cases, although we are not confident to detail on specific age group prevalence, due to fact that majority of cases were older, leaving some younger age group with few cases.

5.2 Factor associated with cervical cancer

5.2.1 Socio-economic factors

In our study we found that having no education and having attained primary level education was not associated with cervical cancer after controlling for other factors. Being in the lowest wealth quintile was the socio economic factor strongly associated with cervical cancer.

Moreover our findings on increased risk of cervical cancer among peasant concur with Hammoud and colleagues findings in Algeria (32). In a study done in Rabat Morocco they also found low wealth status measured by either house hold income or

commodity ownership, was strongly related with cervical cancer (58). In contrary, Jissa et al in rural India record absence of association between manual labourer including farmers with cervical cancer. This was also reported in studies done in Italy and United Kingdom(33)(34)(38).

Our findings might be explained by the fact that population with low socio-economic state are found in rural, and 38.6% live under poverty line (27) (59). In rural mostly are peasants with poor sanitation and less likely to access health education. (12)(24).

5.2.2 Behavioural factors

Poor genital hygiene has been highlighted as one of the factors associated with cervical cancer in various studies(12)(28) (29) (30). Unhygienic effect has been a factor which facilitates persistent exposure to STI including HPV which is a known cause of cervical cancer (4) (7) (19)(23). Our study found that occasional genital washing after intercourse was significantly associated with cervical cancer. However, not washing genital after intercourse was not associated with cervical cancer after adjusting for other factor. A study in India reported that, those who never or washed occasionally their genitals after intercourse were four times more likely to have cervical cancer as compared to those who always washed their genitalia (12). Also the risk developing cervical cancer by not washing genitalia every day has been reported by Zuo- feng Zhang et al 1989 in rural china (30). In Mali and Morocco, these studies found that in addition to washing genitalia, the washing pattern of vaginal, quality of napkins used and vaginal douche practice were also associated with lower risk, factors which we did not explore further in this study (29) (31). Our study only assessed whether genitalia were washed or not and not the type of methods and pattern.

Early age at first intercourse has consistently reported to be a risk factor in most previous epidemiological studies of cervical cancer (60) (61) .Women commencing early sexual intercourse are more likely to have multiple partners, high parity and STI. However we did not establish such an association in our study and this could have been explained by sensitive nature of the question.

5.2.3 Reproductive factors

In this study we found increased risk among ever user of oral contraceptive pills compared to never user of oral contraceptive pills. Our findings agree with a study in eastern Morocco which found increased risk of cervical cancer among users of oral contraceptive pills (24). Considering the diagnosis composition of controls (infertility, fibroids, and ectopic pregnancy) makes it highly unlikely for controls to have used oral contraceptives. And this could be the explanation for our finding to differ from other studies which failed to associate contraceptive pills and cervical cancer (22) (24) (32) (38).

Parity has been most reproductive factor associated with cervical cancer in previous studies in both developing and developed (29) (36)(33) (62). In Uganda Newton and colleagues report the risk of 2.6 among women with four or more 4 pregnancies, and the risk was more among with 10 and above (36). However, our study did not establish such an association and the possible plausible reasons for our findings could be inadequate sample size.

5.3 Study strengths and limitations

Our study was conducted at tertiary level hospitals MNH and ORCI which serves the whole of country population. This gave our study an opportunity to include participants from a wide geographic area. Furthermore, cases included in this study had been diagnosed by histopathoplogy. This ensured that a case recruited was certainly a case thus minimizing misclassification bias among cases.

Among limitations in our study include recruitment of controls from the gynaecology and obstetrics department. The controls from the same department might have shared the same risk factors with cases which might underestimate the measured effect. To overcome this effect, we excluded all controls that had been ever diagnosed to have any type of malignancy, coronary heart disease, chronic obstructive pulmonary disease, or underwent of hysterectomy or cervical conisation. Also we could not match case and control on age variable during recruitment, although we controlled the effect by adjusting for age during multivariate analysis; however we recognize the possibility residual confounding effect to the association obtained in this study. Furthermore most controls had diagnosis of infertility, bad obstetric history, fibroids, abortion and post ectopic pregnancy. Another limitation was not performing cervical cancer screening among controls to exclude early cervical cancerous lesions. The pelvic and vaginal examination done to a control at first consultation could minimise the chances of recruiting early pre malignant patients among controls. However, this does not guarantee the possibility of misclassification of the controls. Furthermore, most of our questions relied on participants self-reports which may have subjected the study to information bias. Studies have shown that respondents tend to give socially desirable answers to sensitive questions such as sexual practices. This might have led to unbiased estimates. Despite these limitations, the study has provided important information for planning preventive strategies.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Our study has demonstrated independent risk factors for cervical cancer which includes being a peasant, low socio-economic status, poor genital wash and oral contraceptive pill use. HIV infection is quite high among cervical cancer patient compared to non-cancerous patient.

Thus, there is the need for strengthening both cancer prevention control programs and implementation strategies by addressing socio-economic, behavioural and reproductive factors.

6.2 Recommendations

1. Ensure scaling up of cervical cancer preventive and control services particularly for women in lower socio economic strata.
2. Encourage continuous health education on cervical cancer risk, including genital wash after sexual intercourse to both health care workers and community.
3. The launching of HPV vaccine should be prioritized in region with most risk group including peasants, economically poor district.
4. Encourage to continue advocating and screening cervical cancer among HIV women

CHAPTER SEVEN

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7.2: OUESTIONNAIRE

Dodoso Namba_____

Namba ya faili_____

VISABABISHI VYA SARATANI YA SHINGO YA KIZAZI KWA WANAWAKE WANAOHUDHURIA HOSPITALI ZA RUFAA MUHIMBILI NA TAASISI YA SARATANI OCEAN ROAD DAR ES SALAAM, TANZANIA

Sifa za Kidemografia

1) Mwaka wa kuzaliwa_____

2) Ulizaliwa wapi? _____

3) Mahali ulikozaliwa ni;
    1. Mjini
    2. Kijijini
    3. Mchanganyiko (Mjini-kijijini)
    4. Sijui

4) Nini Kiwango chako cha Elimu cha juu?
    1. Hakuwahi kwenda shule
    2. Shule ya msingi
    3. Shule ya sekondari
    4. Chuo/Shule ya Ufundi
    5. Chuo Kikuu

5) Je dini yako ni ?
    1. Mkiristo
    2. Muislamu
    3. Dini nyingine
    4. Sina Dini

6) Ajira yako kuu ni?
    1. Mama wa Nyumbani
    2. Mkulima
    3. Mwajiriwa
    4. Umejiajiri
    5. Mwanafunzi
    6. Ajira nyingine taja_____

7) Je kwasasa
    1. Umeolewa?

2. Unaishi na mwenzi bila kufunga ndoa?
3. Umeachika/mmetengana?
4. Mjane?
5. Hajaolewa (hujawahi kuolewa wala kishi na mwenzi bila ya kunga ndoa)?

** Kuishi na mwenzi bila kufunga ndoa maana yake ni kuwa na mahusiano ya kingono kwa miezi sita au zaidi bila kuwa hati ya kindoa ya kisheria au kidini hata kama hawaishi nyumba moja

Uliza swali la nane kama ameolewa katika swali la saba

8) Je umeolewa katika ndoa ya wake wangapi?
   1. Mmoja 2. Zaidi ya mmoja

Iwapo jibu la swali Namba 7 ni "hajaolewa" nenda swali namba 11

9) Uliolewa au kuishi na mwenzi bila kufunga ndoa kwa mara ya kwanza ukiwa na umri gani?_____

10) Uliolewa au kuishi na mwenzi bila kufunga ndoa mara ngapi katika maisha yako? _____ (pamoja na mara ya kwanza)

Hali ya kijamii/kiuchumi

11) Je katika nyumba unayoishi (kwa muda mwingi) kuna (weka √)

1. Umeme? _____ Ndiyo ☐ Hapana ☐
2. Kandili/chemli? _____ Ndiyo ☐ Hapana ☐
3. Redio? _____ Ndiyo ☐ Hapana ☐
4. Runinga? _____Ndiyo ☐ Hapana ☐
5. Simu ya mezani ?_____Ndiyo ☐ Hapana ☐
6. Pasi ya mkaa?_____ Ndiyo ☐ Hapana ☐
7. Jokofu ?_____ Ndiyo ☐ Hapana ☐

12) Kuna mtu katika familia yako anamiliki kifaa chochote kati ya hivi vifuatavyo (weka √)

1. Saa ya Mkononi?_____Ndiyo ☐ Hapana ☐
2. Simu ya kiganjani _____Ndiyo ☐ Hapana ☐
3. Baiskeli _____Ndiyo ☐ Hapana ☐
4. Pikipiki _____Ndiyo ☐ Hapana ☐
5. Gari? _____Ndiyo ☐ Hapana ☐

6. Akaunti ya benki? _____ Ndiyo ☐ Hapana ☐

12) Nini chanzo kikuu cha maji ya kunywa kwa wanakaya?
    1. Maji ya bomba
    2. Maji ya kisima
    3. Maji ya mto,bahari, ziwa
    4. Maji ya kununua
    5. Chanzo kingine taja_____

13) Je nyumba unayoishi kwa muda mwingi katika maisha yako imeezekwa kwa kutumia nini?
    1. Nyasi
    2. Bati
    3. Vigae
    4. Viezekeo tofauti na vilivyotajwa hapo juu .....

Social behaviour/ Practice

14) Katika kuishi kwako umewahi kuvuta sigara? Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 14 ni HAPANA nenda swali namba 18

15) Je kwa sasa
    1. Unaendelea kuvuta?*
    2. Umeacha?** : Ulikuwa na umri gani kipindi unaacha kuvuta sigara?

       _____(miaka)

       *Angalau anavuta sigara moja kwa siku kwa muda usiopungua mwaka mmoja
       **Ameacha kuvuta kwa kipindi kisichopungua mwaka mmoja kabla ya siku ya mahojiano haya

16) Je ulikuwa na umri gani kipindi ulipoanza kuvuta sigara?_____(miaka)

17) Je, kwa wastani ni sigara ngapi ulikuwa/unavuta kwa siku? _____(idadi ya sigara)

Sexual behaviour

18) Je umewahi kuwa na mahusiano ya kingono? Ndiyo ☐ Hapana ☐

Kama Hapana nenda swali la 35

19) Ulikuwa na umri gani, kipindi unakutana kimwili na mwanaume kwa mara ya kwanza?_____(miaka)

Kama jibu la swali la namba 19 umri ni zaidi ya miaka 20 nenda swali namba 21

20) Je,ni wanaume wangapi ulikutana nao kimwilli kabla ujafikia umri wa miaka 20_____ (idadi ya wanaume)

21) Je,katika kuishi kwako ni wanaume wangapi umewahi kuwa na mahusiano nao ya kingono (kwa zaidi ya miezi sita)?_____ (idadi ya wapenzi)

22) Je,umewahi kukutana kimwili na mwanamume ambaye hakutahiriwa? Ndiyo ☐

Hapana ☐

23) Kwa kadri ya ufahamu wako , je mume/mwenzi wako aliwahi kuwa na mahusiano ya kingono na mwanamke mwingine tofauti na wewe?

1. Ndiyo
2. Hapana
3. Sijui

24) Kwa kadri ya ufahamu wako, je mume/mwenzi wako aliwahi kuugua magonjwa yafuatayo?

1. Kaswende Ndiyo ☐ Hapana ☐
2. Kisonono Ndiyo ☐ Hapana ☐
3. Klamydia Ndiyo ☐ Hapana ☐
4. Warts/condyloma Ndiyo ☐ Hapana ☐
5. Magonjwa mengine ya zinaaa Ndiyo ☐ Hapana ☐

25) Je wewe umewahi kuugua magonjwa yafuatayo?

1. Kaswende Ndiyo ☐ Hapana ☐
2. Kisonono Ndiyo ☐ Hapana ☐
3. Klamydia Ndiyo ☐ Hapana ☐
4. Warts/condyloma Ndiyo ☐ Hapana ☐
5. Magonjwa mengine ya zinaaa Ndiyo ☐ Hapana ☐

26) Je ukiacha uhusiano wako ulionieleza hapo juu, umewahi kuwa na mahusiano yoyote mengine ya kingono yaliyodumu kwa kipindi kisichozidi miezi sita?

Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 26 ni HAPANA nenda swali la 31

27) Je, kwa kadri kumbukumbu zako ni wanaume wangapi umewahi kuhusiana nao kimwili kwa kipindi kisichozidi miezi sita ? _____(idadi ya wanaume)

28) Je mpenzi/wapenzi wako wa muda (chini ya miezi sita) kuna yeyote aliwahi kuugua magonjwa ya zinaa?
    1. Ndiyo
    2. Hapana
    3. Sijui

29) Je kwa kumbukumbu yako, mpenzi/wapenzi wako wa muda (chini ya miezi sita) alitumia/walitumia kondomu mlipokutana kimwili? Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 28 ni HAPANA nenda swali namba 30

30) Je walitumia/alitumia
    1. Kila mara
    2. Mara nyingi
    3. Mara chache
    4. Hakuwahi kutumia

31) Je umewahi kufanya kazi katika danguro au wewe mwenyewe kufanya biashara ya ngono? Ndiyo ☐ Hapana ☐

32) Kwa hivyo basi katika kuishi kwako umekutana na wanaume wangapi kimwili?_____ (idadi ya mwanaume/wanaume)

33) Je uwa/ulikuwa unasafisha sehemu zako za siri kabla ya kukutana kimwili na mwenzi/mpenzi? Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 32 ni HAPANA nenda swali namba 34

34) Je una/ulikuwa unasafisha
    1. Mara chache
    2. Kila mara

35) Je uwa/ulikuwa unasafisha sehemu zako za siri baada ya kukutana kimwili na mwenzi/mpenzi? Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 34 ni HAPANA nenda swali namba 36

36) Je una/ulikuwa unasafisha

1. Mara chache
2. Kila mara

Maswali ya Uzazi

37) Je, ulikuwa na miaka mingapi ulipoanza kupata hedhi kwa mara ya kwanza?_____(Miaka)

38) Je, umewahi kujifungua mtoto?_____ Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 38 ni HAPANA nenda swali la 41

39) Ulikuwa na umri gani ulipojifungua mtoto wa kwanza? _____ (Miaka)

40) Je umejifungua mara ngapi?_____(idadi ya mimba zilizofikia miezi saba)

41) Je umewahi kutumia njia yoyote ya uzazi wa mpango? Ndiyo ☐ Hapana ☐

Kama jibu la swali namba 41 ni HAPANA usiulize swali la 42-43

42) Ni njia zipi kati ya hizi unatumia/ulikuwa unatumia

1. Vidonge Ndiyo ☐ Hapana ☐
2. Kondomu Ndiyo ☐ Hapana ☐
3. Kitanzi Ndiyo ☐ Hapana ☐
4. Withdrawal methods Ndiyo ☐ Hapana ☐
5. Njia nyingine Ndiyo ☐ Hapana ☐

43. Je, umetumia/ulitumia njia ya uzazi wa mpango kwa muda gani?_____(idadi ya miaka)

44. Hali ya maambukizi ya virusi vya HIV

1. +ve
2. – ve
3. Hayuko tayari kupima

7.3: CONSENT FORM

FOMU YA RIDHAA YA KUSHIRIKI KATIKA UTAFITI

Kichwa cha Utafiti

VISABABISHI VYA SARATANI YA SHINGO YA KIZAZI KWA WANAWAKE WANAOHUDHURIA HOSPITALI ZA RUFAA MUHIMBILI NA TAASISI YA SARATANI OCEAN ROAD DAR ES SALAAM, TANZANIA

Utangulizi

Jina langu ni Dk karugira yofasi Rweyemamu Mimi ni mtafiti kutoka chuo cha mafunzo ya afya cha Muhimbili. Ninafanya uchunguzi wa kiwango cha saratani ya shingo ya kizazi na visababishi kwa wanawake wanaohudhuria hospitali za rufaa muhimbili na taasisi ya saratani ocean road Dar es salaam, Tanzania

Jinsi ya kushiriki katika utafiti huu

a) **Wagonjwa wa saratani ya shingo ya kizazi**
   Unaombwa kushiriki katika utafiti huu kwa sababu wewe ni mmoja kati ya wanawake waliogundulika kuwa na saratani ya shingo ya kizazi. Ukikubali kushiriki katika utafiti huu, utaulizwa maswali kadhaa yanayolenga kujua hisoria yako iliyopita kuhusu mahusiano ya kingono, tabia, hali ya kiuchumi na uzazi.

b) **Wagonjwa wasio na saratani ya shingo ya kizazi**
   Unaombwa kushiriki katika utafiti kwa sababu wewe ni mmoja kati wanawake waliogundulika kuwa na magonjwa mengine yasiyo husiana na saratani ya shingo ya kizazi. Ukikubali kushiriki katika utafiti huu, utaulizwa maswali kadhaa yanayolenga kujua hisoria yako iliyopita kuhusu mahusiano ya kingono, tabia, hali ya kiuchumi na uzazi.

Dhumuni la utafiti

Utafiti huu utatusaidia kutoa taarifa na uelewa zaidi kwa wataalamu na watunga sera kuhusu kiwango cah saratani na visababishi hivyo kuisaidia katika mipango ya uhamasishaji na uzuiaji wa maradhi ya saratani

Usiri

Kila kitu kitabakia kuwa siri na kitatumika kwa ajili ya utafiti tu. Timu inayohusika na utafiti itatumia majibu yote kuandaa ripoti itakayokuwa na habari zako na za wanawake wengine walioshiriki katika utafiti huu na taarifa zitawekwa kwa usiri na mhusika hatajulikana kwani anuani,majina havitaumika mahala popote.

Madhara

Sitegemei kutakuwa na kitu chochote kitakachotokea kwako kwa kushiriki katika utafiti huu.

Haki ya kushiriki

Ushiriki wako katika utafiti huu si lazima. Una uwezo wa kukubali au kukataa bila kutoa sababu zozote za kufanya hivyo. Na ukikubali, unaweza kubadili uamuzi wako wakati wowote

Ukiwa na maswali yoyote kuhusu utafiti huu, uwe huru kuwasiliana nami, mtafiti mkuu, Dk Karugira yofasi Rweyemamu (0784 977 811)

Kama utakuwa na maswali kuhusu haki zako kama mshiriki, unaweza kumpigia Prof Mainen Moshi, Mwenyekiti wa kamati ya utafiti. Simu namba 21503026

Kama umekubali kuhojiwa, tafadhali saini hapa:

Mimi……., nimesoma na kuelewa kilichoelezwa kwenye fomu hii na maswali yangu yamejibiwa kiufasaha. Hivyo ninakubali kuhojiwa kwa ajili ya utafiti huu.

Sahihi ya mhojiwa …….. Tarehe ……..

Sahihi ya mhoji……

Tarehe……

7.4 ETHICAL CLEARANCE

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

Directorate of Postgraduate Studies

P.O. BOX 65001
DAR ES SALAAM
TANZANIA.

Website: http://www.muhas.ac.tz

Tel: +255-(0)22-2150302 Ext 207.
Tel (Direct): +255-(0)22-2151378
Telefax:255-(0)22-2150465
E-mail: *dpgs@muhas.ac.tz*

Ref. No. MU/PGS/SAEC/Vol.VI/

14th November, 2012

Dr. Karugira Y. Rweyemamu,
MSc. Applied Epidemiology
MUHAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED "RISK FACTORS ASSOCIATED WITH CERVICAL CANCER AMONG WOMEN ATTENDING REFERRAL HOSPTIALS (MUHIMBILI NATIONAL HOSPITAL AND OCEAN ROAS CANCER INSTITUTE) IN DAR ES SALAAM"

Reference is made to the above heading.

I am pleased to inform you that, the Chairman has on behalf of the Senate approved ethical clearance for the above-mentioned study.

Thus ethical clearance is granted and you may proceed with the planned study.

Dr. J. R. Masalu
ACTING: DIRECTOR, POSTGRADUATE STUDIES

/emm

c.c. Vice Chancellor, MUHAS
c.c. Deputy Vice Chancellor – ARC, MUHAS
c.c. Dean, School of Public Health and Social Sciences - MUHAS